DOCUMENT RESUME

ED 270 017 HE 019 330

AUTHOR Hilton, Thomas L.; Schrader, William B.
TITLE Students of the Humanities in the 1970s and 1980s. Final Report.
INSTITUTION Educational Testing Service, Princeton, N.J.
SPONS AGENCY National Endowment for the Humanities (NFAH), Washington, D.C.
PUB DATE Dec 85
GRANT OP-20092-83
NOTE 184p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC08 Plus Postage.
DESCRIPTORS Bachelors Degrees; College Attendance; *College Graduates; Comparative Analysis; Followup Studies; Higher Education; *High School Seniors; *Humanities; *Longitudinal Studies; *Majors (Students); *Nonmajors; Research Methodology; Student Characteristics; Two Year Colleges; Upper Division Colleges
IDENTIFIERS *National Longitudinal Study High School Class 1972

ABSTRACT

A longitudinal study of the educational paths of humanities majors was conducted with a sample of high school seniors who participated in the National Longitudinal Study (NLS) of the High School Class of 1972. Comparisons to the 1980 NLS seniors cohort were also made. Students completed a survey as seniors as well as four follow-up surveys. The following concerns were investigated for 1972 seniors who attained a bachelor's degree in the humanities by October 1979: pathways to the degree, differences between students earning humanities degrees and students earning degrees in other fields, differences between humanities and nonhumanities majors that were evident in 1972, and differences between 1972 and 1980 humanities majors. Student pathways were: the extent of high school academic studies, college entry and attendance at two- or four-year colleges, enrollment in a four-year college after two years of study, majors, and field of work students expect for themselves at age 30. Results were also assessed by student characteristics: sex; socioeconomic status; race (White, Black, and Hispanic); ability, and educational attainment (graduate and professional school studies). Finally, characteristics of students changing majors (joining/leaving the humanities) were considered. Numerous tables and figures are interspersed throughout the text. Information on data processing steps is appended. (SW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED270017

FINAL REPORT

Students of the Humanities in the 1970's and 1980's

Grant No. OP-20092-83

Thomas L. Hilton
William B. Schrader

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
ETS
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Educational Testing Service
Princeton, New Jersey 08541
December 1985

The research reported herein was performed pursuant to a grant from the National Endowment for the Humanities. Grantees undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official National Endowment for the Humanities position or policy.

HE 019 310

FINAL REPORT

Students of the Humanities in the 1970's and 1980's

Grant No. OP-20092-83

Thomas L. Hilton
William B. Schrader

Educational Testing Service
Princeton, New Jersey 08541
December 1985

The research reported herein was performed pursuant to a grant from the National Endowment for the Humanities. Grantees undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official National Endowment for the Humanities position or policy.

ACKNOWLEDGEMENTS

Analyzing two major data bases extending over a 14-year period is a complex task requiring the cooperation of many government, university, and ETS staff members. Dennis Carroll, William Fetters, and Jeffrey Owings, all at the National Center for Education Statistics, made the data tapes available and provided frequent technical advice. Dr. Arnita Jones and Jeffrey Thomas of the National Endowment for the Humanities, which provided the funding for the study, were model program officers. We are indebted to them for their wisdom and patience in administering our grant.

In refining the procedures for the study and particularly in developing a definition of humanities majors, we relied extensively on the advice of a distinguished advisory committee:

Dr. Hugh Cline, Educational Testing Service
Dr. Ernest Frerichs, Brown University
Ambassador Robert Goheen, Princeton University
Dr. Gay MacQueen, Educational Testing Service
Dr. William Turnbull, Educational Testing Service
Dr. John Winterbottom, Educational Testing Service

Their guidance was invaluable.

We also are grateful to James Ferris, Ka Ling Chan, and Judith Pollack who were responsible for the data processing and scientific programming. Faith Thompson skillfully performed the word processing. Irene Smith was primarily responsible for production of the manuscript with her usual skill and conscientiousness. To all these willing people we give our thanks.

TABLE OF CONTENTS

Page

Chapter 1 - Students of the Humanities in the 1970's and 1980's............ 1-1

The Problem.. 1-3
Plan of Work... 1-6
    Data Base.. 1-6
    Instruments.. 1-10
    Data Analysis.. 1-13

Chapter 2 - Educational Career Pathways of 1972 High School Seniors, 1972-1979.. 2-1

Definition of Categories... 2-2
    High School Program.. 2-2
    First College Entered.. 2-3
    Status in Fall 1974.. 2-5
    Major Field: Bachelor's Degree................................. 2-6
    Expected Occupation at Age 30.................................. 2-7
Sample... 2-8
Results.. 2-9
    All High School Seniors.. 2-9
    Summary of Results: All High School Seniors.................... 2-20
    Results: Male and Female Students.............................. 2-23
    Results: High and Low Socioeconomic Status Students............ 2-28
    Results: White, Black, and Hispanic Students................... 2-37
    Results: High Ability Students................................. 2-45
    Results: High Ability White and High Ability Black Students..... 2-52
    Results: Postbaccalaureate Graduate and Professional School Students... 2-56
    Summary of Results: Defined Subgroups.......................... 2-66

Chapter 3- Humanities Majors: Stability and Change During the Four College Years.. 3-1

Results.. 3-2
    Pathways Analysis.. 3-2
Characteristics of Students Changing Majors........................ 3-7
    Students Leaving Humanities.................................... 3-10
    Students Joining the Humanities................................ 3-12
    Humanities Persisters Vs. Nonhumanities Persisters............. 3-18
Discussion... 3-18

Chapter 4 - Comparison of College Humanities Majors and College Nonhumanities Majors.. 4-1

    Differences between Humanities and Nonhumanities Majors in 1981.. 4-6

TABLE OF CONTENTS
(continued)

Chapter 5 - Change in Humanities Majors from 1973 to 1981 5-1

Results 5-1
Conclusions 5-20

Chapter 6 - Summary and Conclusions 6-1

Enrollment in Humanities and Degree Attainment 6-2
Postbaccalaureate Commitments and Intentions 6-2
Early Characteristics of Students Majoring in the Humanities 6-3
Degree Attainment in the Humanities 6-6

References 6-12

Appendices 6-14

A - Data Processing Steps in Defining Flow Diagram Categories

B - Multiple Regression of Humanities Major (1) Vs. Nonhumanities Major (0) on Student Characteristics in 1972

Multiple Regression of Humanities Major (1) Vs. Nonhumanities Major (0) on Student Characteristics in 1980

C - Data Processing Steps in Defining Sophomore Major in 1973 and 1981

LIST OF FIGURES

Page

Figure 1-1 - Schematic Representation of NCES Longitudinal Studies......... 1-7

Figure 1-2 - First Page of NLS Student Questionnaire...................... 1-11

Figure 1-3 - First Page of First Follow-Up Questionnaire of NLS Sample..... 1-12

Figure 1-4 - Pathways for 1972 High School Seniors Who Attended Postbaccalaureate Graduate School.............................. 1-15

Figure 1-5 - Illustrative Item for Occupation at Age 30.................. 1-17

Figure 2-1 - Pathways for 1972 High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 16,740)..2-11

Figure 2-2 - Pathways for 1972 Male High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 7,957).. 2-21

Figure 2-3 - Pathways for 1972 Female High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 8,783).. 2-24

Figure 2-4 - Pathways for 1972 High Socioeconomic Status High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 4,051)............................ 2-31

Figure 2-5 - Pathways for 1972 Low Socioeconomic Status High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 4,599)............................ 2-32

Figure 2-6 - Pathways for 1972 High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 13,331)..2-38

Figure 2-7 - Pathways for 1972 Black High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 1,995).. 2-39

Figure 2-8 - Pathways for 1972 Hispanic High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (N = 639).. 2-40

Figure 2-9 - Pathways for 1972 High Ability High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 3,470)................................... 2-47

Figure 2-10 - Pathways for 1972 High Verbal Ability High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 3,431).. 2-48

Figure 2-11 - Pathways for 1972 High Mathematical Ability High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 3,928)............................ 2-49

LIST OF FIGURES
(continued)

Page

Figure 2-12 - Status at Each of Five Stages for 1972 High Ability Black and High Ability White High School Seniors: Estimated Percent in Each Category (Actual N = 49 for Black Students and N = 3,252 for White Students)....... 2-55

Figure 2-13 - Pathways for 1972 High School Seniors Who Attended Postbaccalaureate Graduate School: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 503).. 2-58

Figure 2-14 - Pathways for 1972 High School Seniors Who Attended Postbaccalaureate Professional School: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 529).. 2-59

Figure 3-1 - Shifts in Major Field for 1972 High School Seniors Who Were Enrolled in College in October 1972, October 1973, and October 1974 and Who Earned a Bachelor's Degree by October 1976: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 2,481).................. 3-3

Figure 3-2 - Flow of Students from Sophomore Year to Baccalaureate...... 3-9

Figure 5-1 - Mean Grades in High School by Sex and College Major........ 5-3

Figure 5-2 - Mean Grades in High School by High School Curriculum and College Major...................................... 5-5

Figure 5-3 - Mean Reading Score of Humanities Majors by Sex............ 5-7

Figure 5-4 - Mean Reading Score by Type of Control of High School....... 5-8

Figure 5-5 - Mean Mathematics Score by Sex............................ 5-10

Figure 5-6 - Time Spent Each Week on Homework by Sex................... 5-11

Figure 5-7 - Father's Education by Major of Student.................... 5-13

Figure 5-8 - Percentage of Mothers with Professional Positions by Major and Type of High School............................ 5-14

Figure 5-9 - Student's Report on Importance of Earning Money by Socioeconomic Status.. 5-16

Figure 5-10 - Student's Report on Importance of Work to Correct Social Inequalities.. 5-17

Figure 5-11 - Highest Level of Education Planned, by Major and Sex....... 5-18

Figure 5-12 - Attitude Towards More Emphasis on Academics............... 5-19

8

LIST OF TABLES

Page

Table 2-1 - Estimated Number Per 1,000 High School Seniors Classified by High School Program and Baccalaureate Major Field......... 2-17

Table 2-2 - Estimated Number Per 1,000 High School Seniors Classified by Type of College First Entered and Baccalaureate Major Field.. 2-19

Table 2-3 - Estimated Number Per 1,000 Male and Per 1,000 Female High School Seniors Classified by High School Program and Baccalaureate Major Field.................................. 2-27

Table 2-4 - Estimated Number Per 1,000 Male and Per 1,000 Female High School Seniors Classified by Type of College First Entered and Baccalaureate Major Field................................ 2-29

Table 2-5 - Estimated Number Per 1,000 High Socioeconomic Status and Per 1,000 Low Socioeconomic Status High School Seniors Classified by High School Program and by Baccalaureate Major Field.. 2-34

Table 2-6 - Estimated Number Per 1,000 High Socioeconomic Status and Per 1,000 Low Socioeconomic Status High School Seniors Classified by Type of College First Entered and by Baccalaureate Major Field.................................. 2-36

Table 2-7 - Estimated Number Per 1,000 White, Per 1,000 Black, and Per 1,000 Hispanic High School Seniors Classified by High School Program and by Baccalaureate Major Field............. 2-42

Table 2-8 - Estimated Number Per 1,000 White, Per 1,000 Black, and Per 1,000 Hispanic High School Seniors Classified by Type of College First Entered and by Baccalaureate Major Field....... 2-44

Table 2-9 - Estimated Number Per 1,000 High Ability, Per 1,000 High Verbal Ability, and Per 1,000 High Mathematical Ability High School Seniors Classified by High School Program and by Baccalaureate Major Field.................................. 2-51

Table 2-10 - Estimated Number Per 1,000 High Ability, Per 1,000 High Verbal Ability, and Per 1,000 High Mathematical Ability High School Seniors Classified by Type of College First Entered and by Baccalaureate Major Field....................... 2-53

Table 2-11 - Estimated Number Per 1,000 Graduate Students and Per 1,000 Professional School Students Classified by High School Program and by Baccalaureate Major Field....................... 2-63

Table 2-12 - Estimated Number Per 1,000 Graduate Students and Per 1,000 Professional School Students Classified by Type of College First Entered and by Baccalaureate Major Field.............. 2-65

LIST OF TABLES
(continued)

Page

Table 3-1 - Mean and Standard Deviation (SD) of High School Grades by Major Categories of Undergraduate Majors.................. 3-14

Table 3-2 - Mean and Standard Deviation (SD) of Vocabulary Test Scores of Major Categories of Undergraduate Majors........... 3-15

Table 3-3 - Mean and Standard Deviation (SD) of Importance of Money by Major Categories of Undergraduate Majors.................. 3-16

Table 3-4 - Mean and Standard Deviation (SD) of Attitude Towards More Academic Emphasis in High School Courses................ 3-17

Table 4-1 - Mean ($\bar{X}$) and Standard Deviations (SD) of Selected Measures for Humanities and Nonhumanities Majors in 1973..... 4-2

Table 4-2 - Mean ($\bar{X}$) and Standard Deviations (SD) of Selected Measures for Humanities and Nonhumanities Majors in 1981..... 4-7

Table 5-1 - Socioeconomic Status of Humanities and Nonhumanities Students.. 5-12

Chapter 1

STUDENTS OF THE HUMANITIES IN THE 1970'S AND 1980'S

> "Preserving the quality of graduate education in the arts and sciences—and ultimately the continuity of scholarship in basic fields of knowledge—may well be the single most serious educational challenge facing American universities over the next decade and a half"—William G. Bowen, p. 40.[1]

Some 30 years ago, Dael Wolfle perceived a need for a comprehensive survey of Americans engaged in demanding intellectual work. He recognized that the future welfare of the United States is heavily dependent "upon those of its citizens who are competent to work effectively with ideas" (Wolfle, 1954, p. 5). His 1954 book, America's Resources of Specialized Talent, which searched out the available evidence on this broad topic, placed particular emphasis on the flow of highly able students through the educational system into professional and specialized careers.

Wolfle's landmark contribution stimulated much further work. It was recognized that information obtained by following individuals through their educational and occupational careers was indispensable for understanding career development for evaluating the effects of social change on career choice, and for educational planning. In 1960, Project TALENT (Wise, 1979) began data collection on a large national sample of high school seniors, and in 1961, the ETS Study of Academic Prediction and Growth (Hilton, 1979) was undertaken. In 1972 and in 1980, major studies conducted under the sponsorship of the National Center for Education Statistics were initiated. The 1972 study (Hilton & Rhett, 1973) was based on a sample of 22,500 high school seniors and included intensive follow-up surveys in 1973, 1974, 1976, and 1979 (Davis & Levinsohn, 1979). A parallel study in 1980, which is referred to as High School and Beyond (HS&B), includes 30,000 sophomores and 28,000 seniors in 1,015 high schools; and both samples were surveyed again in 1982. The present study is primarily concerned with analysis of data for high school seniors in 1972, and 1980, and for students in the 1972 high school senior sample who were followed up in 1979.

---

[1] W. G. Bowen (1981). Graduate Education in the Arts and Sciences: Prospects for the Future. Change, 13(5), 40-45.

This study focusses on the young people in the samples who chose the humanities as their field of study and, for some, their life work. That there is deep concern for the condition of the humane disciplines is clear. Sharp declines, both reported and predicted, in collegiate and graduate enrollments in the humanities have prompted the concern (O'Connor, 1981), and the crisis has been noted as particularly severe in the study of literature and foreign languages. Unwelcome increases, too, in the projected number of graduate degrees awarded in some of the humanities have led to the dismal forecast of an imbalance in supply and demand. Thus, it was foreseen that, in 1985, there would be three times more Ph.D.'s in the humanities than would be needed for employment (U. S. Bureau of Labor Statistics, chap. 2, p. 15).

Within the humanities area, history departments are now seeking not only to stabilize and control the numbers they enroll but also to prepare their prospective graduates for nonacademic careers (a major turnabout, since the humanities graduate has typically been recruited for employment within academia).

Along with reasons for concern about the future of the humanities in American education, it may be desirable to consider certain positive indications, as suggested by the Commission on the Humanities (1980, p.8).

> The prospects for the humanities are better than some might think. Educational opportunity in and beyond school is now available to more Americans of all origins and ages than ever before. Access to higher education has broadened in the past fifteen years as four-year institutions have expanded and two-year colleges proliferated. Total undergraduate and graduate enrollments for credit increased from about 4.8 million in 1963 to about 11.7 million in 1979; within these totals, enrollments in two-year colleges rose from about 900,000 in 1963 to 4.3 million in 1979. Noncredit enrollments in adult education have grown even more dramatically, as has public interest in the performing arts, museums, and cultural activities. The expansion and diversification of learning represent a major commitment of American democracy and have opened new possibilities for the humanities.

The Problem

Despite the general concern, relatively little is known about the development of interests, values, career choices, and other personal qualities--from secondary school through graduate school--of students in the humanities. We do not, for example, have good answers to questions such as the following:

- What proportion of college-bound high school seniors later major in the humanities and, further, what proportion of those who do so eventually receive bachelor's degrees in the humanities and, of these, what proportion intend to make a career of their interests? What happens to the students who leave study of the humanities?
- What are the early characteristics (e.g., interests, self-concept, cognitive competencies) of young people who eventually study humanities at the undergraduate level in comparison to those who study in other areas (e.g., the physical sciences)?
- What is the probability of bachelor's degree attainment in the humanities by students who follow one educational pathway vs. another (e.g., attending a four-year college vs. attending a two-year college and transferring to a four-year college)?
- If we know the number of students at some point "in the pipeline," how many are likely eventually to receive bachelor's degrees in the humanities? What factors may cause past predictions to be invalid and in what direction?

Thus, factual knowledge responsive to these questions, particularly knowledge about college students and their educational programs, should contribute substantially to a better understanding of the current status and future prospects of the humanities in the United States.

Several reasons can be cited for our lack of knowledge in this area. The most important has been the relative paucity of suitable data, a condition that arises primarily from the costliness of surveying and following up a large national sample of students. The available data typically have been cross-sectional, i.e., based on different samples at single points in time. Estimating from such data how individuals develop over a period of years is a highly uncertain process. Secondly, the available samples have either been too small or unrepresentative. Furthermore, when large national samples have been available, the studies have not included the kind of data required. Data based on single classes within a university or, at best, several universities, do not permit generalizations to college student population of the United States even though such studies may be a rich source of hypotheses about individual development (Sanford, 1956; Super, 1953). On the other hand, national samples such as those of the periodic surveys by the Census Bureau and the Office of Education not only are cross-sectional but also do not include individual data on interests, decision-making, personal experiences, and other variables important to understanding the dynamics of individual career development.

The ETS Growth Study was a national longitudinal study but, except for a limited follow-up of a fraction of the sample, the data collection ended with the senior year of high school (Hilton, 1979). Project TALENT did provide some relevant data on the development of scholars and professionals, but the subjects of that mammoth national study passed through higher education almost 20 years ago and, thus, the data are, for most purposes, outdated (Flanagan et al., 1962). Thus, although the description they provide of the process of educational development is relevant and will inform the present study, the population estimates of, for example, the numbers studying in the humanities are primarily of historical interest.

Fortunately, there now exists a data resource which was extraordinarily suitable for the investigation of the questions above. This is the data file for the 1972, 1980, and 1982 national longitudinal studies conducted under the sponsorship of the National Center for Education Statistics (NCES). The samples are large (20,000 - 30,000 each), randomly drawn, and longitudinal, i.e., the same students are being followed for a number of years. These studies are described in the following section.

Plan of Work

Data Base

The total NCES longitudinal data set, including the cohort beginning with the high school graduating class of 1972, is based on a carefully devised system of data collection. A schematic representation of it is given in Figure 1-1. We will refer to the three cohorts as (a) the 1972 Seniors, i.e., the cohort which was first tested in the spring of their senior year in 1972, (b) the 1980 Seniors, i.e., the cohort first tested as seniors in the spring of 1980, and similarly, (c) the 1982 Seniors who were first surveyed as sophomores in the spring of 1980 and then were followed up two years later at which time most of the original sophomores were high school seniors. As shown in Figure 1-1, the 1972 Seniors were first followed up in the fall of 1973, at which time those sample members who went directly to two- or four-year colleges, and remained in school, were college sophomores (Grade 14).

The 1972 Seniors. The structure of the First Follow-up Questionnaire is such that their status in the fall of 1972 (i.e., the fall following high

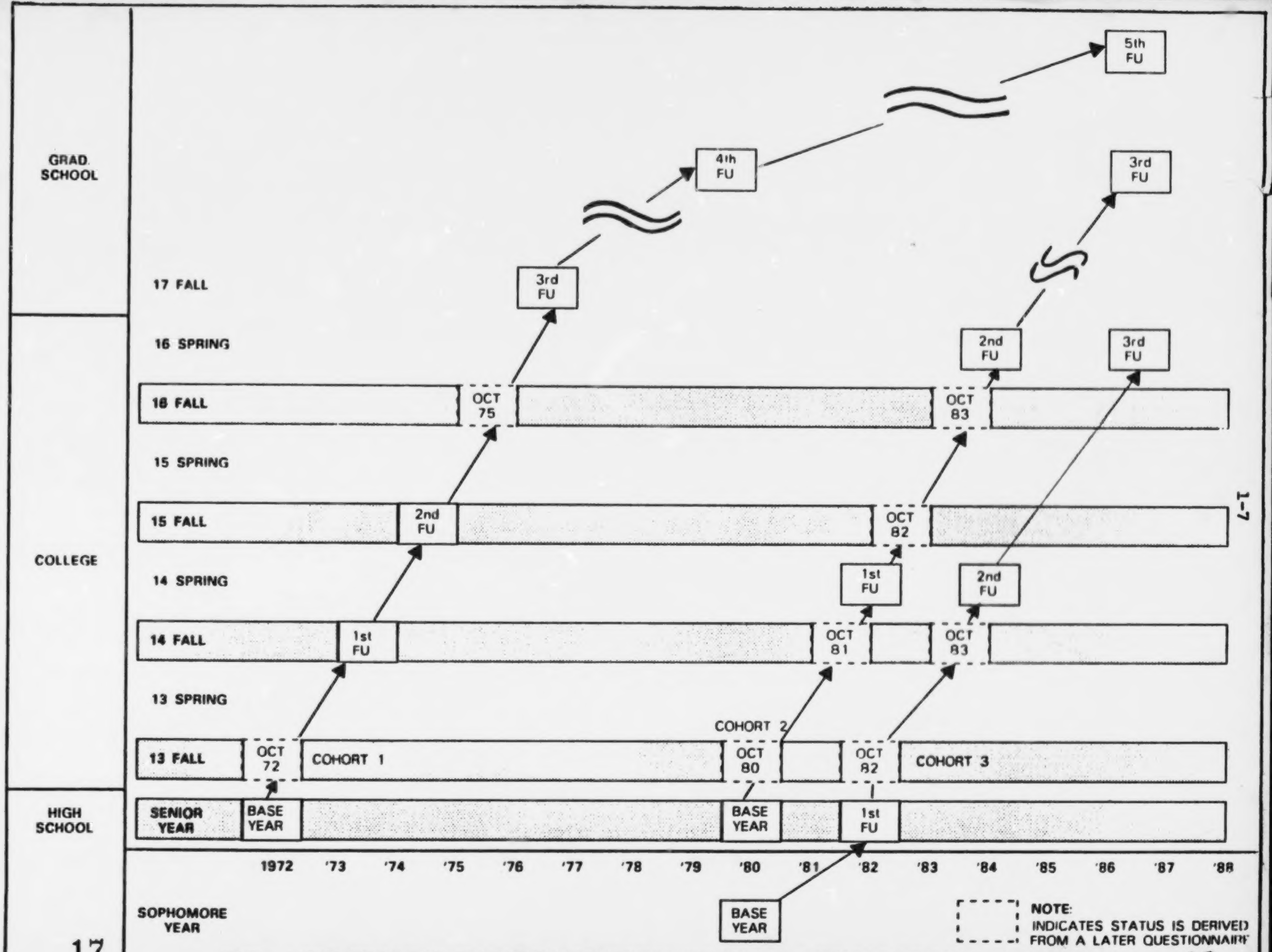

GRAD. SCHOOL
COLLEGE
HIGH SCHOOL
17 FALL
16 SPRING
16 FALL
15 SPRING
15 FALL
14 SPRING
14 FALL
13 SPRING
13 FALL
SENIOR YEAR
SOPHOMORE YEAR
5th FU
4th FU
3rd FU
3rd FU
2nd FU
3rd FU
OCT 75
OCT 83
2nd FU
OCT 82
1st FU
2nd FU
1st FU
OCT 81
OCT 83
COHORT 2
OCT 72
COHORT 1
OCT 80
OCT 82
COHORT 3
BASE YEAR
BASE YEAR
1st FU
1972
'73
'74
'75
'76
'77
'78
'79
'80
'81
'82
'83
'84
'85
'86
'87
'88
BASE YEAR
NOTE:
INDICATES STATUS IS DERIVED FROM A LATER QUESTIONNAIRE

FIG.1-1 SCHEMATIC REPRESENTATION OF NCES LONGITUDINAL STUDIES

school graduation) could be determined. (This is shown as the dashed box labelled "Oct. '72" in Figure 1-1.) Similarly, the Third Follow-Up Questionnaire inquired about the respondent's status one year earlier (October '75) and the Fourth Follow-Up Questionnaire covered the falls of 1977 and 1978. As a result, the entire seven-year span from the fall of 1972 to the fall of 1979 can be fixed at yearly intervals.

By virtue of this design, the personal development of the sample can be traced from the senior year of high school through three years of graduate or professional school (for the small but significant fraction that continued in higher education without interruption). For the sample members who did not continue their education on graduation from high school, the seven years span the critical years of becoming established in a job, including--for many--job training, apprenticeship, marriage, and starting a family.

For the 1972 Seniors, the sources of variance can be thought of as two broad categories: time and age. At each successive level (e.g., Grade 13, Grade 14) the sample had aged by one year. All of the variables that influence individual development contribute to change in this respect, including schooling, family and peer influences, and maturation. However, as Schaie (1965) points out, there is a time difference between data collections, and there will be an effect attributable to net changes in the environment that occur from the time of one data collection to the next. Interpretation of the results had to keep these major sources of differences in mind.

The 1980 and 1982 Seniors. The 1980 Senior cohort was designed to parallel the 1972 Senior cohort, but with one important exception. Instead of occurring in the fall of the second year after high school graduation, the first follow-up was postponed until the following spring, exactly two years after the base-year survey.

As a result of the timing of the 1980 Senior cohort and the questionnaire additions, it was possible to accomplish an important comparison. The individual development of members of the 1972 Senior cohort and the 1980 Senior cohort could be examined in the spring of their twelfth-grade year and in the fall of the first and second years after the initial survey. Future follow-ups will provide additional comparisons.

No use was made in the present study of data for the 1982 Senior cohort. Future studies will profit from analysis of this cohort.

Sample design. The respondents in NLS were sampled as 1972 Seniors from a national probability sample of 1,318 public, private, and church-affiliated high schools located throughout the 50 states and the District of Columbia. The school sampling frame was stratified into 600 final strata, based upon the following seven variables: Type of control (public or nonpublic), geographic division (Northeast, North Central, South, West), grade 12 enrollment (fewer than 300, 300-599, 600 or more), proximity to institutions of higher education, percent minority group enrollment, income level of the community around the school, and degree of urbanization. Two schools with known probabilities were chosen from each of the strata, and within each school a simple random sample of 18 students was selected. Schools in low income areas or with high minority-group populations were oversampled.

The 1980 survey was similar, with a major exception. In each of the 1,000 schools in the sample, 36 seniors and 36 sophomores were randomly selected. These two classes, as they were followed up, form two separate cohorts, giving us a total of three parallel cohorts for analysis, prediction, and hypothesis testing.

Instruments

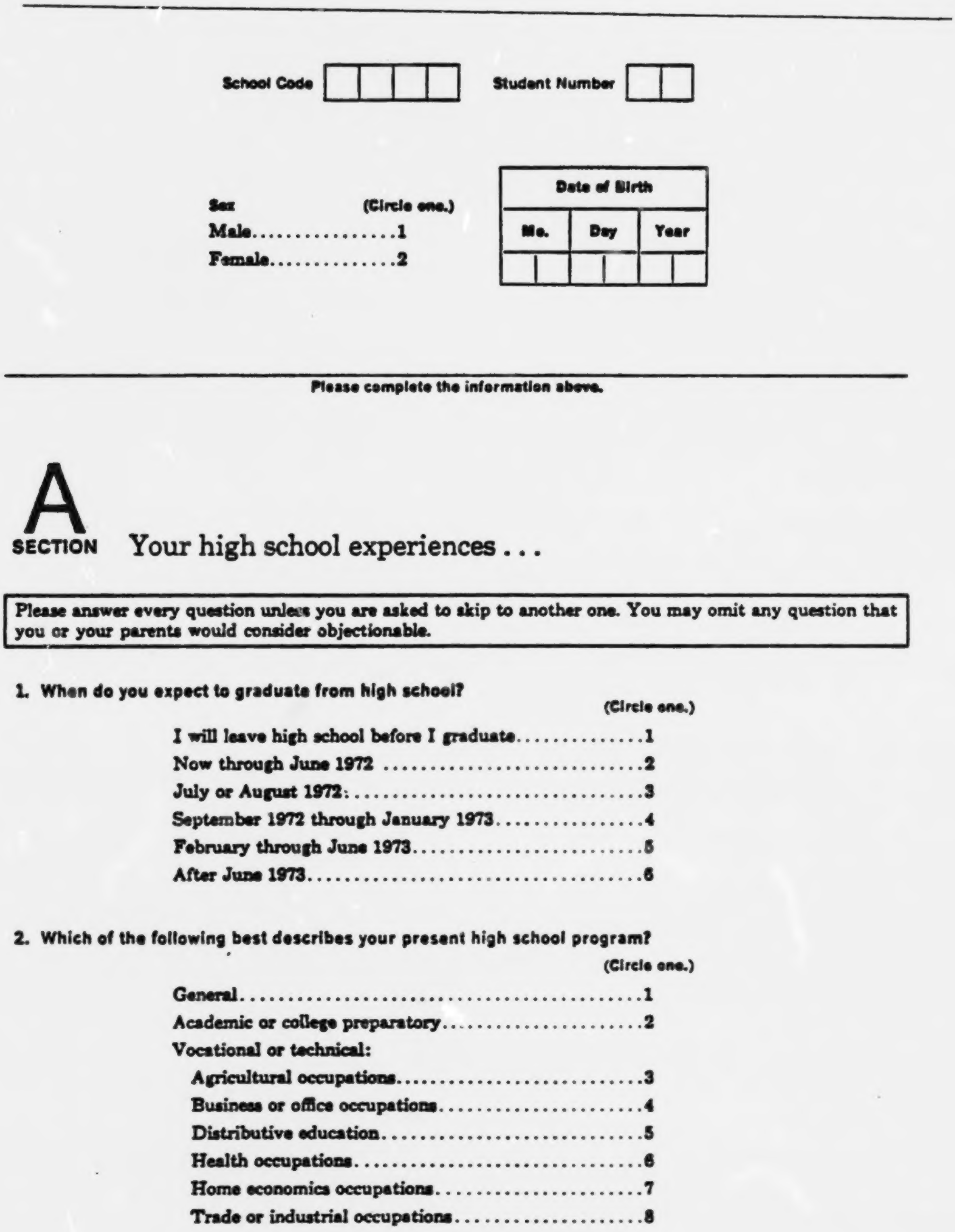
1972 Seniors. As part of the base year survey, the students completed a 37-page questionnaire concerning their background, ethnicity, high school experiences, educational and occupational plans, and certain attitudes and values. The first page of the questionnaire is shown on the next page (Figure 1-2). SAT and ACT scores were retrieved from school files for all students who had taken one or both of the tests. Also, the students completed a test battery that consisted of six short tests: Vocabulary, Picture-Number, Reading, Letter Groups, Mathematics, and Mosaic Comparisons.

The four follow-up questionnaires of the 1972 cohort focussed on the respondents' educational and occupational status, income, plans, satisfactions, and other information about their parents, background, and previous school experiences. In the fourth follow-up, the response rate was over 90%. Thus, there was relatively little self-selection in the sample. Data tapes, including data from the base year survey and each of the four follow-ups, were available. The first page of the first follow-up questionnaire is shown on a subsequent page (Figure 1-3).

1980 Seniors. This cohort completed instruments similar to those completed by the 1972 Seniors. The questionnaires were expanded and refined but a large core of critical questions were repeated verbatim to permit comparisons across cohorts and within cohorts. Thus, for example, the choices of college major of the 1972 Seniors can be compared with those of the 1980 Seniors. Similarly, the choices of the 1972 Seniors can be compared with their choices in 1973, 1974, 1976, and 1979 (for those who stayed in higher education).

Figure 1-2

First Page of NLS Student Questionnaire



School Code ☐☐☐☐ **Student Number** ☐☐

Sex (Circle one.)
Male................1
Female..............2

Date of Birth		
Mo.	Day	Year
☐☐	☐☐	☐☐

Please complete the information above.

A SECTION Your high school experiences . . .

Please answer every question unless you are asked to skip to another one. You may omit any question that you or your parents would consider objectionable.

1. When do you expect to graduate from high school?

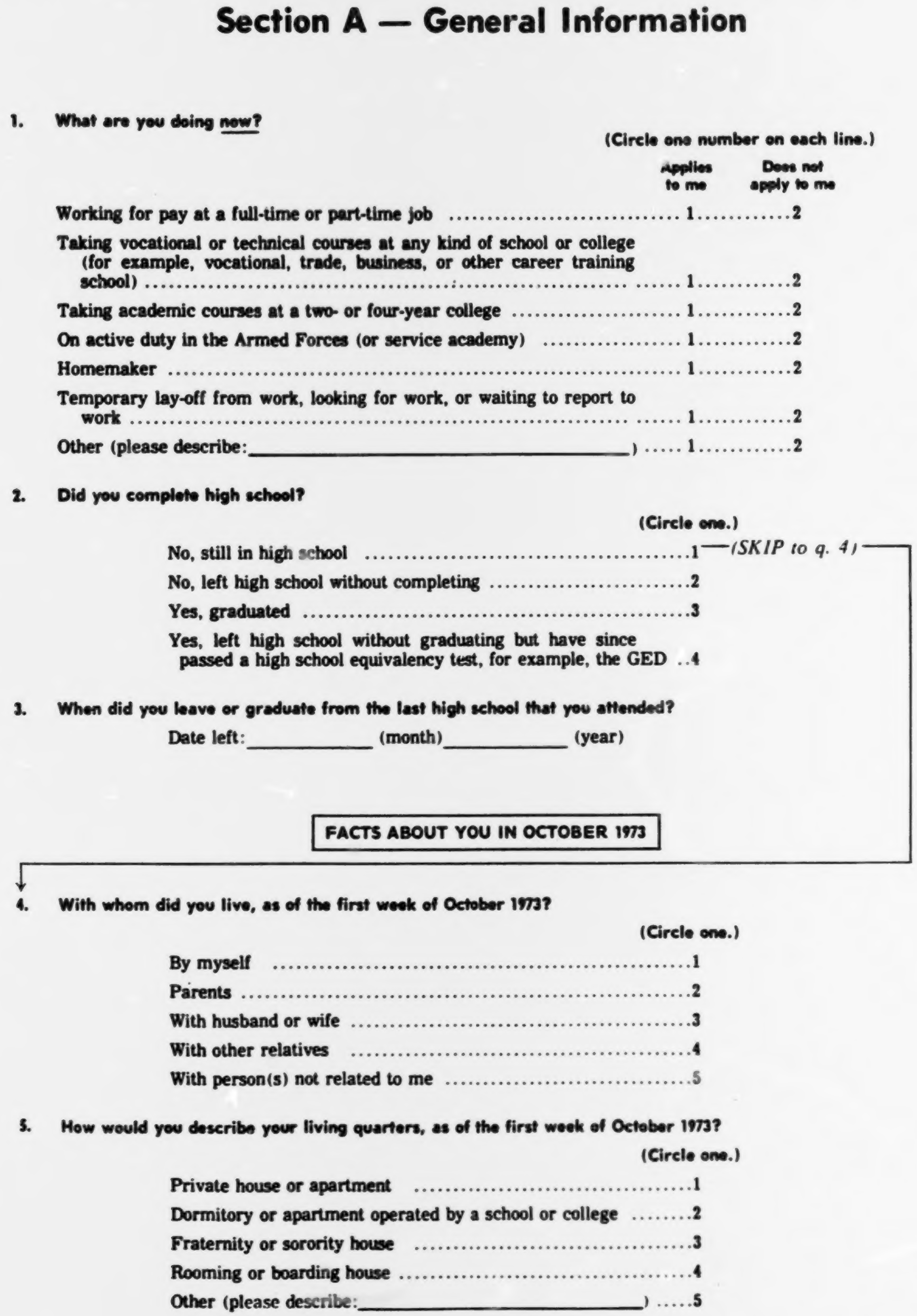
(Circle one.)
I will leave high school before I graduate..............1
Now through June 1972 2
July or August 1972:...............................3
September 1972 through January 1973................4
February through June 1973.........................5
After June 1973....................................6

2. Which of the following best describes your present high school program?

(Circle one.)
General...1
Academic or college preparatory..................2
Vocational or technical:
  Agricultural occupations.......................3
  Business or office occupations.................4
  Distributive education.........................5
  Health occupations.............................6
  Home economics occupations.....................7
  Trade or industrial occupations................8

Figure 1-3

First Page of First Follow-Up Questionnaire of NLS Sample



Section A — General Information

1. **What are you doing now?**

(Circle one number on each line.)

	Applies to me	Does not apply to me
Working for pay at a full-time or part-time job	1	2
Taking vocational or technical courses at any kind of school or college (for example, vocational, trade, business, or other career training school)	1	2
Taking academic courses at a two- or four-year college	1	2
On active duty in the Armed Forces (or service academy)	1	2
Homemaker	1	2
Temporary lay-off from work, looking for work, or waiting to report to work	1	2
Other (please describe:____________________)	1	2

2. **Did you complete high school?**

(Circle one.)

No, still in high school	1	*(SKIP to q. 4)*
No, left high school without completing	2	
Yes, graduated	3	
Yes, left high school without graduating but have since passed a high school equivalency test, for example, the GED	4	

3. **When did you leave or graduate from the last high school that you attended?**

Date left:__________ (month)__________ (year)

FACTS ABOUT YOU IN OCTOBER 1973

4. **With whom did you live, as of the first week of October 1973?**

(Circle one.)

By myself	1
Parents	2
With husband or wife	3
With other relatives	4
With person(s) not related to me	5

5. **How would you describe your living quarters, as of the first week of October 1973?**

(Circle one.)

Private house or apartment	1
Dormitory or apartment operated by a school or college	2
Fraternity or sorority house	3
Rooming or boarding house	4
Other (please describe:____________________)	5

Data Analysis

The first step in planning the data analysis was to establish a working definition of the humanities. The following definitions given in National Endowment for the Humanities: Sixteenth Annual Report, 1981 (1982, p. 2), provided a useful point of reference: "The term 'humanities' includes, but is not limited to, the study of the following: language, both modern and classical; linguistics; literature; history; jurisprudence; philosophy; archeology; comparative religion; ethics; the history, criticism, and theory of the arts; those aspects of the social sciences which have humanistic content and employ humanistic methods; and the study and application of the humanities to the human environment with particular attention to the relevance of the humanities to the current conditions of material life." In attempting to implement this definition our first discovery was that the high school senior year questionnaires were inadequate for our purposes. A particularly troublesome discipline was that of history. The designers of the base-year questionnaires included history as an example of a social science, thereby encouraging high school seniors interested in majoring in history to check social science as the category encompassing their intended major. Thus, a large and significant group of students whom NEH considers students of the humanities would have been excluded from the analysis had we used that particular item as a way of selecting our sample. Fortunately, however, in the First Follow-Up Questionnaire, students in college were asked to write down what their major was. As described in Chapter 2, these write-in responses were coded by hand in accordance with a long list of options that permitted us, in consultation with NEH and a distinguished advisory commitee, to define—after sometimes heated discussion—the study of humanities in a collectively acceptable way. The final category included history, foreign languages, philosophy, English literature (but not creative writing), music appreciation (but not music performance), history of religion (but not theology), and certain other majors with smaller enrollments.

The data analysis focussed on four questions (and, in the process, addressed a large number of subsidiary questions). We relied largely on simple descriptive statistics (e.g., means, percentages, standard deviations) in an effort to make the essential data about humanities students in the data file accessible to readers without extensive statistical training.

For those 1972 Seniors who attained a bachelor's degree in the humanities by October 1979, we examined the following questions:

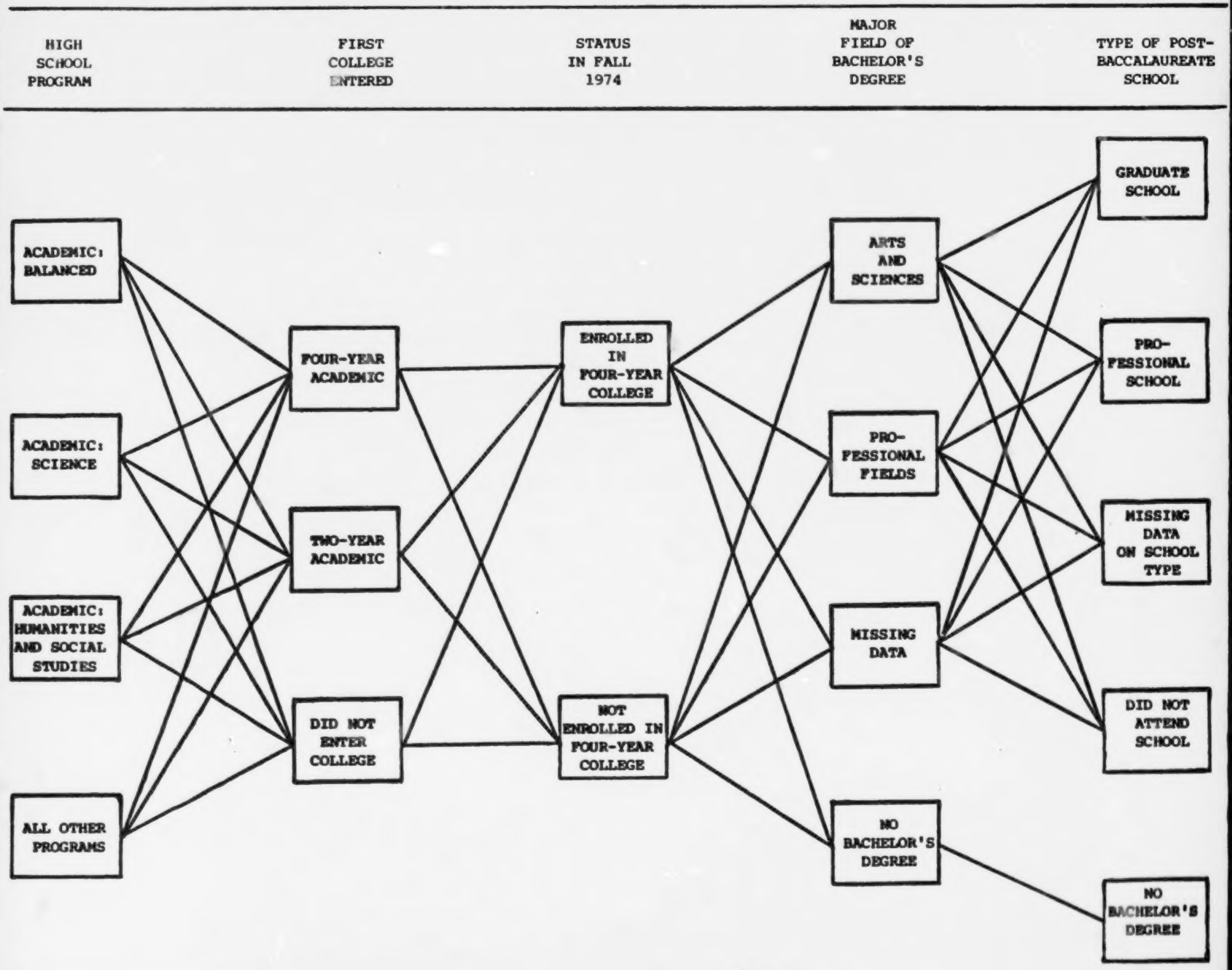
1. By what pathways did they progress to their degree?
2. How did the humanities students differ from students who had earned a bachelor's degree in other fields by October, 1979?
3. How did the humanities students differ in 1972 from students who majored in other fields?
4. How did the humanities students differ in 1972 from humanities students in 1980?

Our view of the flow of students of the humanities is shown in Figure 1-4. In preparing this figure we chose to minimize the number of categories of students, primarily to simplify the exposition and data interpretation. The figure is explained in detail in Chapter 2.

As of the senior year of high school (Column 1), there was, we hypothesized, an important division of the "Academic" group: those who tended to have a scientific orientation and those with a humanistic orientation.

Figure 1-4

Pathways for 1972 High School Seniors Who Attended Postbaccalaureate Graduate School


HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD OF BACHELOR'S DEGREE
TYPE OF POST-BACCALAUREATE SCHOOL
ACADEMIC: BALANCED
ACADEMIC: SCIENCE
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
ALL OTHER PROGRAMS
FOUR-YEAR ACADEMIC
TWO-YEAR ACADEMIC
DID NOT ENTER COLLEGE
ENROLLED IN FOUR-YEAR COLLEGE
NOT ENROLLED IN FOUR-YEAR COLLEGE
ARTS AND SCIENCES
PRO-FESSIONAL FIELDS
MISSING DATA
NO BACHELOR'S DEGREE
GRADUATE SCHOOL
PRO-FESSIONAL SCHOOL
MISSING DATA ON SCHOOL TYPE
DID NOT ATTEND SCHOOL
NO BACHELOR'S DEGREE

The second column describes the next critical time point, the first college entered after high school graduation. The third column identified the students attending four-year colleges. The fourth point of interest concerned those sample members who by 1979 had received bachelor's degrees. The seven-year time span recognizes that the elapsed time between high school graduation and the baccalaureate is more than four years for many students.

Last, we included a column for the occupation which the sample members expected to be doing when they are 30 years old. (The relevant questionnaire item, which was repeated for the 1980 cohort and the 1982 cohort, is shown in Figure 1-5.) This item, of course, had to be interpreted in the light of personal and social factors that may influence the materialization of expectations.

A number of decisions in regard to grouping of sample members had to be made, the grouping of college majors being especially difficult. Decisions in these cases were made in consultation with the NEH program staff and an advisory committee of experts in higher education.

The major analysis consisted primarily of computing the numbers who fell in certain categories and the numbers of subjects in those categories who followed certain pathways in the next time period. Given the complexity of the data file and the huge number of possible pathways, this data processing was a considerable task.

Of special interest was the proportion of women who—in 1980—named the humanities as their first choice in comparison to the proportion who named a nonhumanities field. Did the proportion of women expressing interest in the nonhumanities increase, as has been claimed? Data relevant to these questions are summarized in the following chapters.

Figure 1-5

Illustrative Item for Occupation at Age 30

77. ○ **Write in here the name of the job or occupation that you expect or plan to have when you are 30 years old. Even if you are not at all sure, write in your best guess.**

(WRITE IN) ____________________

A. Which of the categories below comes closest to describing that job? (MARK ONE)

- **CLERICAL** such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent ○
- **CRAFTSMAN** such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter ○
- **FARMER, FARM MANAGER** ○
- **HOMEMAKER** (without other job) ○
- **LABORER** such as construction worker, car washer, sanitary worker, farm laborer ○
- **MANAGER, ADMINISTRATOR** such as sales manager, office manager, school administrator, buyer, restaurant manager, government official ○
- **MILITARY** such as career officer, enlisted man or woman in the Armed Forces ○
- **OPERATIVE** such as meat cutter, assembler, machine operator, welder, taxicab, bus, or truck driver ○
- **PROFESSIONAL** such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including school teacher ○
- **PROFESSIONAL** such as clergyman, dentist, physician, lawyer, scientist, college teacher ○
- **PROPRIETOR OR OWNER** such as owner of a small business, contractor, restaurant owner ○
- **PROTECTIVE SERVICE** such as detective, police officer or guard, sheriff, fire fighter ○
- **SALES** such as salesperson, advertising or insurance agent, real estate broker ○
- **SCHOOL TEACHER** such as elementary or secondary ○
- **SERVICE** such as barber, beautician, practical nurse, private household worker, janitor, waiter, waitress ○
- **TECHNICAL** such as draftsman, medical or dental technician, computer programmer ○
- **NOT WORKING** ○

Chapter 2

EDUCATIONAL CAREER PATHWAYS OF 1972 HIGH SCHOOL SENIORS, 1972-1979

The educational progress of students during the seven years following high school graduation can be conceptualized in terms of a series of decisions and attainments. In this study, five stages have been selected for this purpose. At the first stage, high school graduation, students are classified on the basis of how much work they had taken in academic subjects during their high school years. At the next stage, college entrance, the group is divided first on the basis of whether or not each student entered college and then those who did enter are further divided on the basis of whether a two-year or a four-year college was the point of entry. At the third stage, two years after high school graduation, the group is divided on the basis of whether or not each student was enrolled in a four-year college in the fall of 1974. At the fourth stage, college graduation, students are divided first into those who did and those who did not earn bachelor's degrees, and then those who earned degrees are further classified into humanities majors, nonhumanities majors, and those whose field of study could not be determined from available data. The last stage, age 30, students are classified on the basis of their report, seven years after high school graduation, of the kind of work they expect to be doing at age 30.

The extraordinary wealth of data available in the survey files made the selection of stages and categories for the flow diagrams difficult. In making these choices, we emphasized three considerations. First, the classifications should reflect differences that are clearly important both to students and to educators. Second, the classifications should be readily understood by persons familiar with the American educational system. Third, to the extent possible, the classifications should be based on facts reported in free-response rather than in precoded form.

In this chapter the classification plan for each of the five stages will be described. More detailed information on data processing steps for assigning students to categories is provided in appendix.

Definition of Categories

High School Program

Particularly since World War II, high school students have been able to qualify for graduation on the basis of a wide variety of course patterns. College entrance requirements have also become markedly less rigid while still stressing the importance of solid academic preparation. Using an approach similar to that used by Conant (1959) in his famous survey of American high schools, this study uses the number of years of study in various academic subjects as the basis for describing each student's high school program.

Data on courses taken during the last three years of high school were recorded by school representatives on the School Record Information Form (SRIF). A review of preliminary tabulations suggested that classifying students into those having four or more semesters of study during the last three years of high school and those having less than four semesters would be reasonable for science, mathematics, foreign languages, and social studies. The choice of four semesters as the cutting point seems reasonable as providing evidence of a substantial preparation in the field without requiring that the subject be studied in all three years.

For purposes of the flow diagram, it was decided to group science with mathematics, to group foreign languages with social studies, and to create four categories as shown in the following table:

Group:	Amount of Study: Four Semesters in both science and mathematics	Amount of Study: Four semesters in both foreign languages and social studies
Academic: Balanced	Yes	Yes
Academic: Science	Yes	No
Academic: Humanities and Social Studies	No	Yes
All Other Programs	No	No

Clearly, the "Academic: Balanced" group has a broader base of academic preparation and the "All Other Programs" group has less academic preparation, on the average, than the other three groups. Comparisons of the "Academic: Science" group and the "Academic: Humanities and Social Studies" group with each other and with the "Academic: Balanced" and "All Other Programs" groups was expected to throw some light on the relation between relative deficiency in preparation in either broad area and educational careers.

First College Entered

On first entering college, some students choose a four-year college while others choose a two-year college. Differences in the characteristics and in the educational careers of these two student groups was expected to provide insights into the role of the two-year college in American higher education during the 1970's. The 1972 NLS data file offers an exceptionally suitable basis for studying these differences by providing data for individual sample members at the beginning of each of seven academic years following high school graduation. Moreover, students were asked to report the name and location of their college and their responses were coded manually using the USOE system of FICE codes.

In creating this classification, the data file was searched sequentially to determine the year in which a student first entered college. Each entrant was then classified as having enrolled in a two-year or a four-year college at that time. Students were defined as having entered college at a given time only if they specified a college that had a FICE code and if they did not report that they were enrolled in a "vocational, trade, business or other career training school."

The following table shows the actual number and weighted percentages for initial enrollment in successive Octobers for 1972 through 1976 and for successive periods November through October for October 1977, 1978, and 1979. (Note that the percentages are based on values calculated using the appropriate weight for this subsample rather than from the actual frequencies.)

	Two-Year		Four-Year		Total Group	
Year	Actual	Weighted Percent	Actual	Weighted Percent	Actual	Weighted Percent
1972	2,256	61.9	4,964	79.9	7,220	73.2
1973	415	11.4	416	6.9	831	8.6
1974	248	6.9	313	5.0	561	5.7
1975	261	7.4	155	2.6	416	4.3
1976	84	2.4	87	1.4	171	1.8
1977	136	3.7	112	1.8	248	2.5
1978	122	3.2	85	1.4	207	2.1
1979	21	3.2	60	1.0	181	1.8
Total	3,643	100.1	6,192	100.0	9,835	100.0

These figures indicate that for students who were high school seniors in 1972, a substantial proportion (over one-fourth) of those who entered college had not entered by October following their high school graduation. This percentage was smaller (about one-fifth) for those who first entered a four-year college and larger (about two-fifths) for those who first entered a two-year college. The results also suggest that students who delay college entrance for three or more years are more likely to begin their studies in a two-year college than a four-year college. (Based on weighted figures for all seniors in the subsample used in this analysis, about 7.5 percent entered a two-year college and about 5.1 entered a four-year college between 1975 and 1979.)

With respect to the relatively small percentage of students in the 1976 groups, it seems likely that this may have resulted, at least in part, from the way in which the data were collected and analyzed rather than from a temporary drop in college-going in that year.

Status in Fall 1974

The third classification of students was concerned only with whether or not a student was enrolled in a four-year college at the beginning of the third academic year after high school graduation. The group enrolled in a four-year college at that time was composed mainly of students who entered a four-year college directly from high school and continued their studies each year or who completed two years of work at a two-year college and subsequently transferred to a four-year college. However, the definition does not require standing as a junior, so that some members of the group undoubtedly followed other patterns of college attendance. In any case, students who were enrolled in a four-year college in the fall two years after high school graduation may be regarded as "on track" toward earning a bachelor's degree.

Major Field: Bachelor's Degree

This classification is of pivotal concern for the flow diagrams. In order to classify students at this stage, it was necessary, first, to identify all students who earned a bachelor's degree and, second, to classify them with respect to their major field of study. For purposes of this study, students were classified into four groups, as follows (a) humanities, (b) nonhumanities, (c) not classifiable, and (d) no bachelor's degree.

Students were classified as having earned a bachelor's degree if they reported the month and year of their bachelor's degree on the third follow-up questionnaire (fall 1976) or if they reported the month and year of their bachelor's degree on the fourth follow-up questionnaire (fall 1979). In addition, students must have reported a bachelor's or higher degree as their highest level of educational attainment.

In classifying respondents on the basis of field of study, special attention was given to definition of the humanities group. The Advisory Committee for the study devoted considerable attention to the definition of the group, and their discussion and recommendations played a decisive role in determining which major fields would be included in this category.

Student's free responses to questions concerning their major field of study had been manually coded using the Field of Study (FOS) code system described in A Taxonomy of Instructional Programs in Higher Education by Huff and Chandler (1970). The fact that this system defined major field in terms of specific subjects made it possible to classify history within the humanities field and creative writing as a nonhumanities field, for example.

The following table shows the actual number of sample members assigned to various groups of humanities fields and the percentage of the humanities sample contributed by each group.

Field	Actual Number	Percent
Archaeology	4	1
Area Studies	12	4
Art (History, Appreciation)	5	2
English (Excluding Creative Writing)	115	35
Ethnic Studies	1	0
Foreign Languages	51	16
History	93	29
Music (History, Appreciation)	3	1
Philosophy	19	6
Religious Studies	21	6
		Total
324	100	

Thus, slightly more than one-third of the sample were majors in English, somewhat less than one-third were majors in History, and the remaining one-third were majors in other humanities fields.

Two reported fields were judged not to be classifiable as either humanities or nonhumanities. One of these, "Liberal Arts and Sciences" was reported by 47 students, and the other, "Humanities and Social Sciences" was reported by 3 students. In addition, 114 students for whom field of study data were missing were included in the unclassifiable group.

Expected Occupation at Age 30

For the fifth-stage variable, two criteria were given particular weight: first, the variable should describe a significant aspect of a student's post-college career and, second, that the variable should be one of those selected for intensive follow-up in the 1975 data collection operation. Question 63 of the Fourth Follow-up Questionnaire, "What kind of work will you be doing when you are 30 years old?" fulfilled both criteria satisfactorily.

The fact that classification on this variable was based on a single item in a multiple-choice format simplified the analysis. For the analysis, the 16 items were combined into three groups: (a) Professional, (b) Manager/Proprietor, and (c) All Other.

The first category, "Professional," is based on the following options:

"PROFESSIONAL such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including public school teacher.

PROFESSIONAL such as clergyman, dentist, physician, lawyer, scientist, college teacher.

SCHOOL TEACHER such as elementary or secondary."

The second category, "Manager/Proprietor," is based on the following options:

"MANAGER, ADMINISTRATOR such as sales manager, office manager, school administrator, buyer, restaurant manager, government official.

PROPRIETOR OR OWNER such as owner of a small business, contractor, restaurant owner." (from Q. 63 of Fourth Follow-Up Questionnaire)

All other choices and missing data were assigned to the "All Other" category.

Sample

Careful exploration of the data base in relation to the process of classifying students made it clear that the analysis sample should include only those students who participated in all four follow-up surveys and who had data for the School Record Information Form (SRIF). It was judged that attempting to use data for students who did not participate in one or more surveys would introduce serious ambiguities into the interpretation of the pathways analysis, particularly for the "first college entered" variable and the "major field of bachelor's degree" variable. As a result, the sample size for the pathways analysis was 16,740 out of a total sample of 23,451. The weights for students having data on the four follow-up surveys were used in the analysis without adjustment for the relatively small number (626) of students who lacked data on the School Record Information Form but who would otherwise have been included in the sample. The decision to use the smaller sample with the appropriate weights was based on the importance of having a consistent sample for the variables involved in the pathways analysis, even though it is clear that weighting may not fully control the possible bias arising from the exclusion of nonparticipants from the sample. On the whole, the pathways approach based on students who participated in all four follow-ups seems to be a highly informative way of analyzing longitudinal data, and the loss of data may be considered acceptable for purposes of the present study.

Results

All High School Seniors

Results for the educational career pathways portion of this study are presented in a series of flow diagrams describing the progress of a defined group of sample members through five successive stages. At each stage, the categories or groups are represented by boxes, and the flows into and out of each category are represented by lines connecting each pair of categories in adjacent stages. In addition to the flow diagrams, tables are used to show the relation to bachelor's major field of high school program and type of college (two-year *vs*. four-year) first entered.

In the flow diagrams and tables in this chapter, the number beneath each box designating a category is an estimate of the number of individuals per 1,000 sample members who belong to that category. The number on each connecting line is an estimate of the number of individuals per 1,000 sample members who belong to both of the categories that are connected by the line.[1]

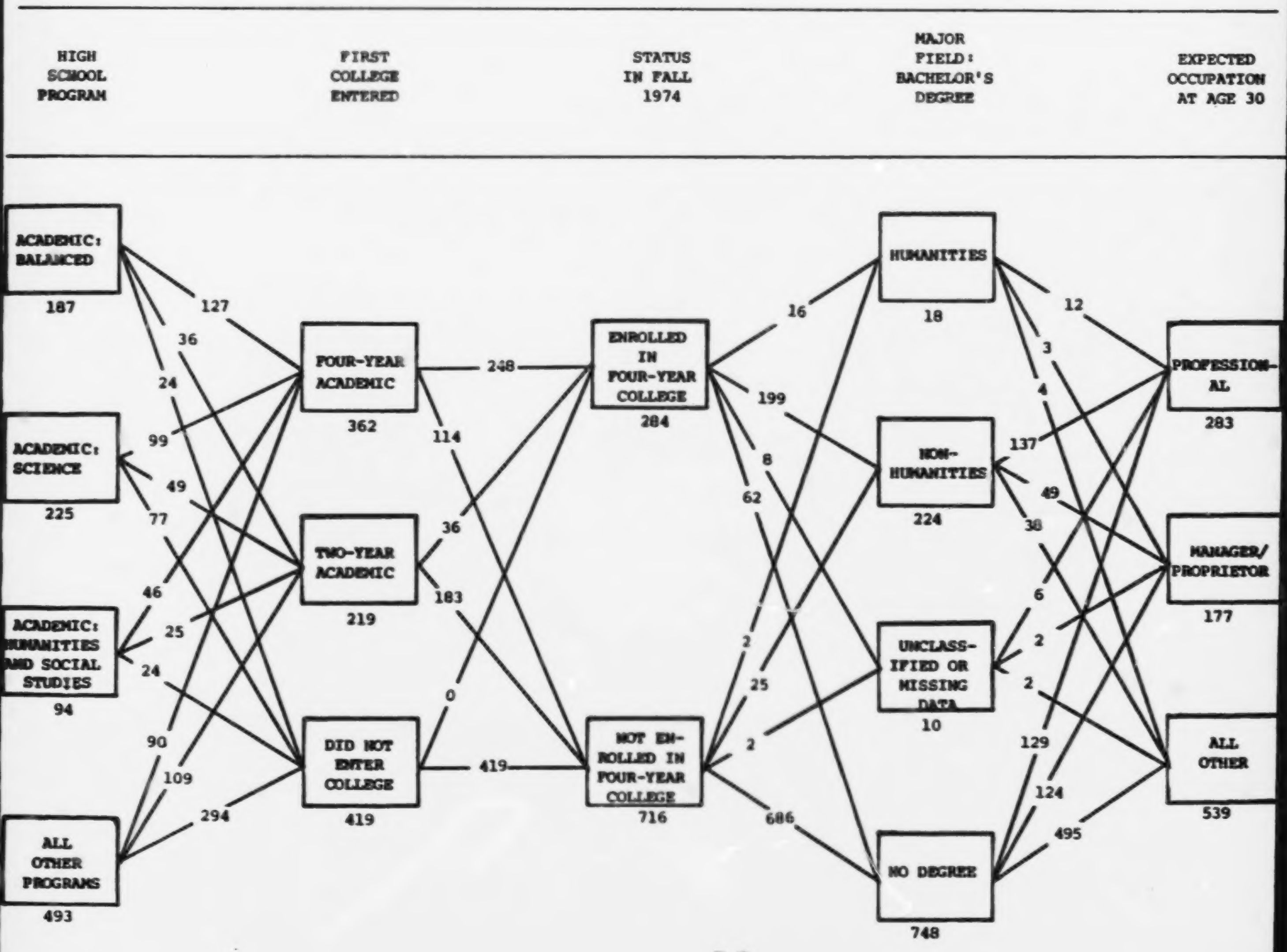
High School Program. Thus, considering the first column at the left of Figure 2-1, slightly less than one-fifth (187 per 1,000) of high school seniors belong to the "Academic: Balanced" group, which includes students who had four semesters or more of study during the last three years of high school in each of four academic areas (science, mathematics, foreign languages, and social studies). The "Academic: Science" group, composed of students who had four semesters or more of both science and mathematics but not of both foreign languages and social studies includes somewhat more than one-fifth of the group (225 per 1,000). The "Academic: Humanities and Social Studies" group is noticeably smaller, with less than one-tenth (94 per 1,000) of the high school seniors. Members of this group had four semesters or more of both foreign languages and social studies but not of both science and mathematics. Finally, the "All Other Programs" group, which includes students who did not qualify for any of the other three groups, includes almost one-half (493 per 1,000) of the high school seniors. On the whole, those results indicate that high school seniors in 1972 tended to choose programs that do not provide strong preparation for the academic demands of college.

---

[1] Results are expressed as estimated number per 1,000 for convenience in comparison and discussion. Because all numbers expressed in this way in a particular flow diagram are based on the same sample, they are directly comparable with each other. Because all estimates were rounded independently, the totals for a column may be slightly greater than or less than 1,000.

Figure 2-1

Pathways for 1972 High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 16,740)


HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
187
ACADEMIC: SCIENCE
225
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
94
ALL OTHER PROGRAMS
493
127
36
24
99
49
77
46
25
24
90
109
294
FOUR-YEAR ACADEMIC
362
TWO-YEAR ACADEMIC
219
DID NOT ENTER COLLEGE
419
248
114
36
183
0
419
ENROLLED IN FOUR-YEAR COLLEGE
284
NOT ENROLLED IN FOUR-YEAR COLLEGE
716
16
199
8
62
2
25
2
686
HUMANITIES
18
NON-HUMANITIES
224
UNCLASSIFIED OR MISSING DATA
10
NO DEGREE
748
12
3
4
137
49
38
6
2
2
129
124
495
PROFESSIONAL
283
MANAGER/PROPRIETOR
177
ALL OTHER
539

First College Entered. The lines connecting boxes in the first column with boxes in the second column of Figure 2-1 provide evidence on the college-going patterns of students who followed each type of high school program. Thus, of 1,000 high school seniors, 187 belonged to the "Academic: Balanced" group. Of these students, 127 (68%)[2] first entered a four-year college, 36 (19%) first entered a two-year college, and only 24 (13%) had not entered college by the fall of 1979. The corresponding percentages for the "Academic: Science" group were: four-year college, 44 percent; two-year college, 22 percent; and no college, 34 percent. For the "Academic: Humanities and Social Studies" group, percentages were as follows: four-year college, 48 percent; two-year college, 26 percent; and no college, 25 percent. The "All Other Programs" group had 18 percent entering four-year colleges, 22 percent entering two-year colleges, and 60 percent who did not enter college. These results show a clear relationship between the kinds of high school program a student pursues and college attendance. At the same time, they show that, for the categories as defined, the connection between high school program and college attendance is by no means rigid. For example, 13 percent (24 of 187) of the students who had a balanced academic program did not enter college while 18 percent (90 of 493) of the students who did not belong to the three academically oriented groups entered a four-year college.

Figure 2-1 results also make it possible to look at the composition of the groups based on first college entered in terms of high school program. The pertinent results are shown in the following table:

---

[2] In this chapter, all percentages were calculated from numbers shown on the figure being discussed. If the number shown beneath a box differs from the total based on numbers shown on the lines originating in that box, the total of the numbers shown on the lines was used in calculating the percentages.

High School Program	Percentage of Group Who Took Each Program: Four-Year College Entrants	Two-Year College Entrants	No College
Academic: Balanced	35	16	6
Academic: Science	27	22	18
Academic: Humanities and Social Studies	13	11	6
All Other Programs	25	50	70
Total	100	99	100

The finding that one-fourth of the students who first entered a four-year college did not belong to any of the three academically oriented groups raises some question about the academic preparation of a substantial number of these students. It is also a matter of possible concern that the composition of the two-year college group in terms of high school programs is quite similar to that for all high school seniors, shown in the first column of Figure 2-1. In interpreting this result it should be noted that many two-year college entrants are not planning to earn a bachelor's degree.

Status in Fall 1974. The next stage in the pathways concerns whether or not a student was enrolled in a four-year college in the fall of 1974, two years after high school graduation. Of students who first entered a four-year college, 69 percent were enrolled in a four-year college in the fall of 1974 as compared with 16 percent of students who first entered a two-year college. These results cannot be interpreted as an exact indicator of drop-out rate, because some students entered college after 1974. Rather they show the extent to which two-year and four-year college entrants were well on their way toward a bachelor's degree two years after high school. Figure 2-1 also shows that of students enrolled in a four-year college in the fall of 1974, 13 percent first entered a two-year college. Thus, although the transfer process is working, the great majority of the four-year college students in the 1972 high school senior group had their lower division work in a four-year college.

Major Field: Bachelor's Degree. The fourth stage in the pathways may be regarded as a landmark in a student's educational career. At this point, students who had earned a bachelor's degree by 1979 were categorized into three groups: (a) those who majored in humanities, (b) those who majored in nonhumanities fields, and (c) those whose major field could not be classified or who had missing data on major field. Students who had not earned a bachelor's degree as of 1979 constituted a fourth category. Of 1972 high school seniors who were enrolled in a four-year college in 1974, 78 percent (223 of 285) had earned a bachelor's degree by 1979. Of the students not enrolled in a four-year college in the fall of 1974, only 4 percent (29 of 715) earned a bachelor's degree by 1979. When the composition of the bachelor's degree group is considered, 88 percent (223 of 252) were enrolled in a four-year college in the fall of 1974. This result supports the view that the great majority of 1972 high school seniors who earned a bachelor's degree within seven years of high school graduation were well under way on their college careers within two years of high school graduation.

Among 1,000 high school seniors in 1972, 18 were classified as having earned a bachelor's degree in the humanities and 224 were classified as having bachelor's degrees in nonhumanities fields. Thus, about 7 percent (18 of 242) of the students whose major could be classified majored in the humanities. As it happened, the percentage of humanities majors among the students who were enrolled in a four-year college in the fall of 1974 and whose major could be classified was 7 (16 of 215) as was the percentage of humanities majors among students who were not enrolled in a four-year college in the fall of 1974 but who earned a bachelor's degree (2 of 27). It appears, then, that a student's status in the fall of 1974 is not related to choice of a humanities rather than a nonhumanities major.

Expected Occupation at Age 30. The final stage of the pathways is based on the student's expected occupation at age 30 as reported in 1979, when the average sample member was about 25 years old. The following table summarizes percentages for the four groups:

	Percentage of Majors Who Expected to be in Each Occupational Group:			
Major Field: Bachelor's Degree	Professional	Manager/ Proprietor	Other	Total
Humanities	63	16	21	100
Nonhumanities	61	22	17	100
Unclassified or Missing Data	60	20	20	100
No Degree	17	17	66	100

When the three bachelor's degree groups are combined, 61 percent (155 of 253) of the group expected to be in professional work, 21 percent (54 of 253) expected to be managers or proprietors, and 17 percent (44 of 253) expected to be in all other occupations. These comparisons indicate a dramatic difference in career expectations between students who have a bachelor's degree and those who do not, but very little difference between humanities and nonhumanities majors. Of course, a more detailed breakdown of fields of study within the humanities or of career choices might well show relationships between major field and expected occupations.

The results shown in Figure 2-1 suggest that it would be useful to know what associations may exist between major field of the bachelor's degree and high school program and between major field and type of college first attended. Table 2-1 shows the relation between high school program and major field. Table 2-1 makes it clear that there is a substantial relation between choice of high school program and the likelihood of earning a bachelor's degree. About 55 percent of the "Academic: Balanced" group, 31 percent of the "Academic: Science" group, 33 percent of the "Academic: Humanities and Social Studies" group, and 9 percent of the "All Other Programs" group earned bachelor's degrees.

Table 2-1 also makes it possible to consider the composition of the bachelor's degree group in terms of high school program. It turns out that of those who earned a bachelor's degree, 41 percent (103 of 251) had taken an "Academic: Balanced" program in high school, 28 percent (70 of 251) had taken an "Academic: Science" program, 12 percent (31 of 251) had taken an "Academic: Humanities and Social Studies" program in high school, and 19 percent (47 of 251) were classified in the "All Other Programs" group. The findings that less than half of the college graduates belonged to the "Academic: Balanced" group and that nearly one-fifth of the graduates belonged to the "All Other Programs" group, may be taken as evidence of the flexibility of the American system of higher education. Alternatively, these findings may be viewed as raising questions needing further study about academic standards.

The four groups differ to some extent in the percentage whose bachelor's major was classified as a humanities rather than nonhumanities. The percent classified as humanities majors is 8 for the "Academic: Balanced" group, 6 for

Table 2-1

Estimated Number Per 1,000 High School Seniors Classified by High School Program and Baccalaureate Major Field

High School Program	Major Field of Bachelor's Degree: Humanities	Major Field of Bachelor's Degree: Non-Humanities	Major Field of Bachelor's Degree: Not Classified	No Bachelor's Degree	Total
Academic: Balanced	8	91	4	84	187
Academic: Science	4	64	2	155	225
Academic: Humanities and Social Studies	4	26	1	63	94
All Other Programs	2	42	2	446	493
Total	18	224	10	748	1,000

the "Academic: Science" group, 13 for the "Academic: Humanities and Social Studies" group and 5 for "All Other Programs" group. For the total baccalaureate group, the percentage of humanities majors was 7. These results suggest that although choices made in high school are reflected to some extent in choices made in college, many other factors affect the student's choice of college major.

Finally, the relations between type of college first entered and bachelor's major should throw some light on the current role of two-year colleges in American higher education. Results of this analysis are shown in Table 2-2. Of 1,000 high school seniors who earned a bachelor's degree by 1979, and whose first college was a four-year institution, 204 could be classified as either humanities or nonhumanities majors. Of these, 8 percent were humanities majors. For the 38 students per 1,000 whose first college was a two-year institution, the corresponding percentage was also 8. Thus, two-year college entrants and four-year college entrants who earn a bachelor's degree are about equally likely to major in the humanities.

Type of college initially attended does show a marked relation to attainment of a bachelor's degree. Fifty-nine percent (212 of 362) of students who began in a four-year college earned a bachelor's degree, but only 18 percent (40 of 220) of those who first entered a two-year college earned a bachelor's group. In part, of course, this difference is attributable to the fact that many entrants to two-year colleges enroll in specialized programs not designed to lead to a bachelor's degree.

Table 2-2

Estimated Number Per 1,000 High School Seniors Classified by Type of College First Entered and Baccalaureate Major Field

Type of College	Major Field of Bachelor's Degree: Humanities	Non-Humanities	Not Classified	No Bachelor's Degree	Total
Four-Year Academic	16	188	8	150	362
Two-Year Academic	3	35	2	180	219
Did Not Enter College	0	1	0	419	419
Total	18	224	10	748	1,000

From another perspective, it can be calculated from Table 2-2 that 84 percent (212 of 251) of the bachelor's degrees are earned by students who first entered a four-year college although Figure 2-2 shows that only 62 percent (362 of 581) of college entrants in the sample first entered a four-year college.

This table also shows that certain students (about 1 in 1,000) whose responses indicated that they did not enter college also indicated that they had earned a bachelor's degree. In the sample of 16,740 respondents used for this analysis, there were 12 students showing this discrepancy. It was judged that the data base did not provide a satisfactory basis for resolving this inconsistency.

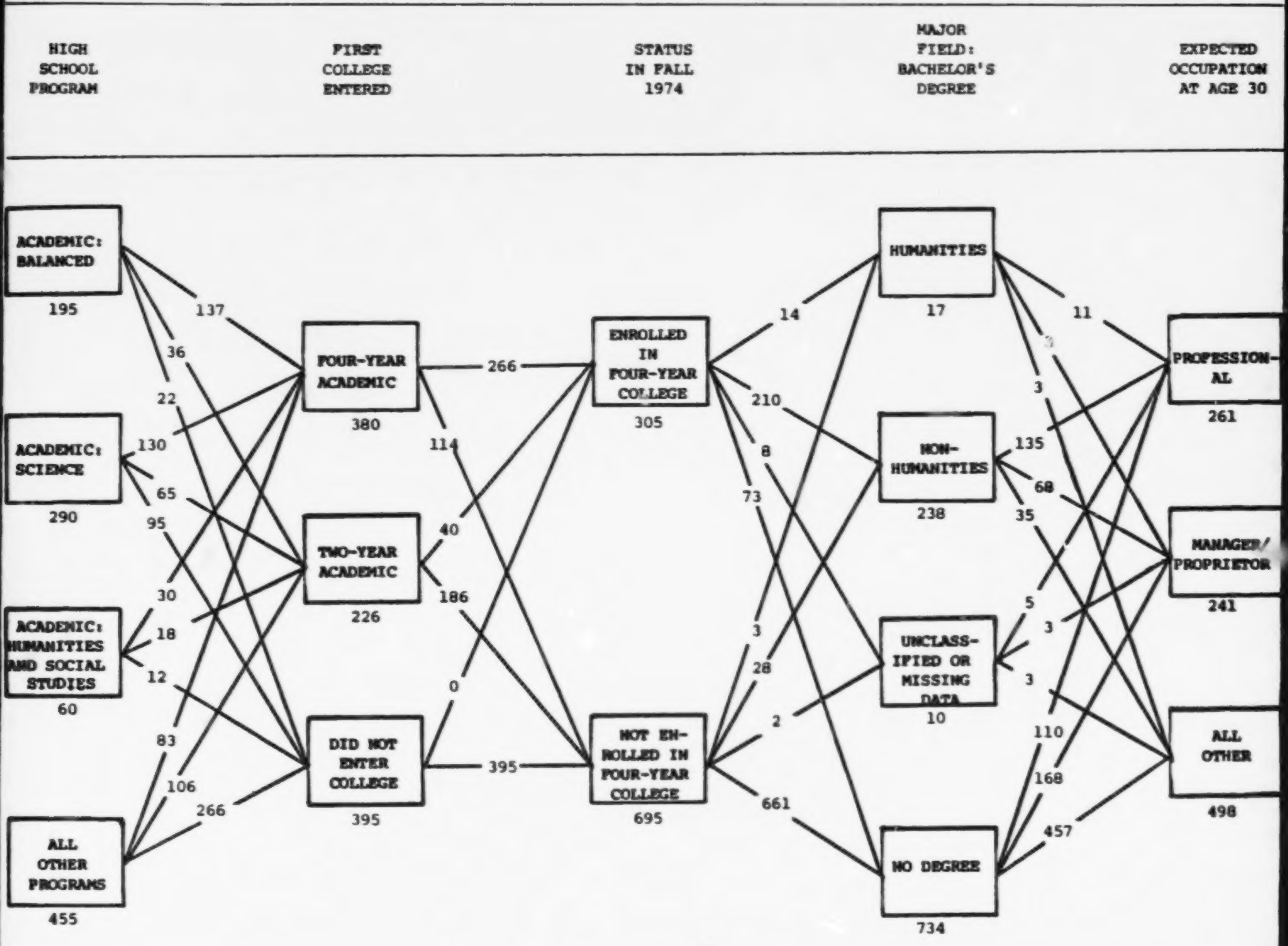
Summary of Results: All High School Seniors

Certain main findings for the high school senior group may be summarized as follows:

1. All of the following student groups have about 8 percent of their members majoring in humanities fields rather than nonhumanities fields for their bachelor's degrees: students whose high school program was "Academic: Balanced," students who first entered a two-year college, students who first entered a four-year college, students who were enrolled in a four-year college in the fall of 1974, and students who were *not* enrolled in a four-year college in the fall of 1974. However, students whose high school program was classified as "Academic: Humanities and Social Studies" were noticeably more likely to report a humanities major (13%) than students whose program was classified as "Academic: Science" (5%). For all students who earned a bachelor's degree, the percentage of humanities majors was 7.

igure 2-2

athways for 1972 Male High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 7,957)


HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
195
ACADEMIC: SCIENCE
290
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
60
ALL OTHER PROGRAMS
455
137
36
22
130
65
95
30
18
12
83
106
266
FOUR-YEAR ACADEMIC
380
TWO-YEAR ACADEMIC
226
DID NOT ENTER COLLEGE
395
266
114
40
186
0
395
ENROLLED IN FOUR-YEAR COLLEGE
305
NOT ENROLLED IN FOUR-YEAR COLLEGE
695
14
210
8
73
3
28
2
661
HUMANITIES
17
NON-HUMANITIES
238
UNCLASSIFIED OR MISSING DATA
10
NO DEGREE
734
11
3
3
135
68
35
5
3
3
110
168
457
PROFESSIONAL
261
MANAGER/PROPRIETOR
241
ALL OTHER
498

2. High school program showed a marked relation to the likelihood at entering college, to type of college first entered, and to attainment of a bachelor's degree. Thus in the "Academic: Balanced" group, 87 percent enrolled in college, 68 percent first entered a four-year college, and 55 percent earned a bachelor's degree. On the other hand, the "All Other Programs" group (whose programs did not qualify for the "Academic: Balanced," "Academic: Science" or "Academic: Humanities and Social Studies" group) showed markedly different results. Of this group, which included 493 students per 1,000 high school seniors, 40 percent entered college, 18 percent first entered a four-year college, and 9 percent earned a bachelor's degree. Because so many of the graduates belonged to the "All Other Programs" group, however, this group constituted 25 percent of the entrants to four-year colleges and 19 percent of the students who earn bachelor's degrees.
3. Of the students in the sample who earned bachelor's degrees within seven years of high school graduation, 88 percent were enrolled in a four-year college in the fall of 1974, two years after graduation. This finding suggests that despite the wide diversity in patterns of college attendance, the great majority of students who earn a bachelor's degree follow the tradition of going directly to college after high school. At the same time, it is clear that the remaining 12 percent of the bachelor's group constitutes a substantial number of students. Comparisons over time of this statistic should throw light on changing patterns of college attendance.
4. There was a dramatic difference between persons with a bachelor's degree and those without a degree in expectations of career choice at age 30. Some 61 percent of the bachelor's degree group expected to be

engaged in professional work as compared to 17 percent of persons without a bachelor's degree.

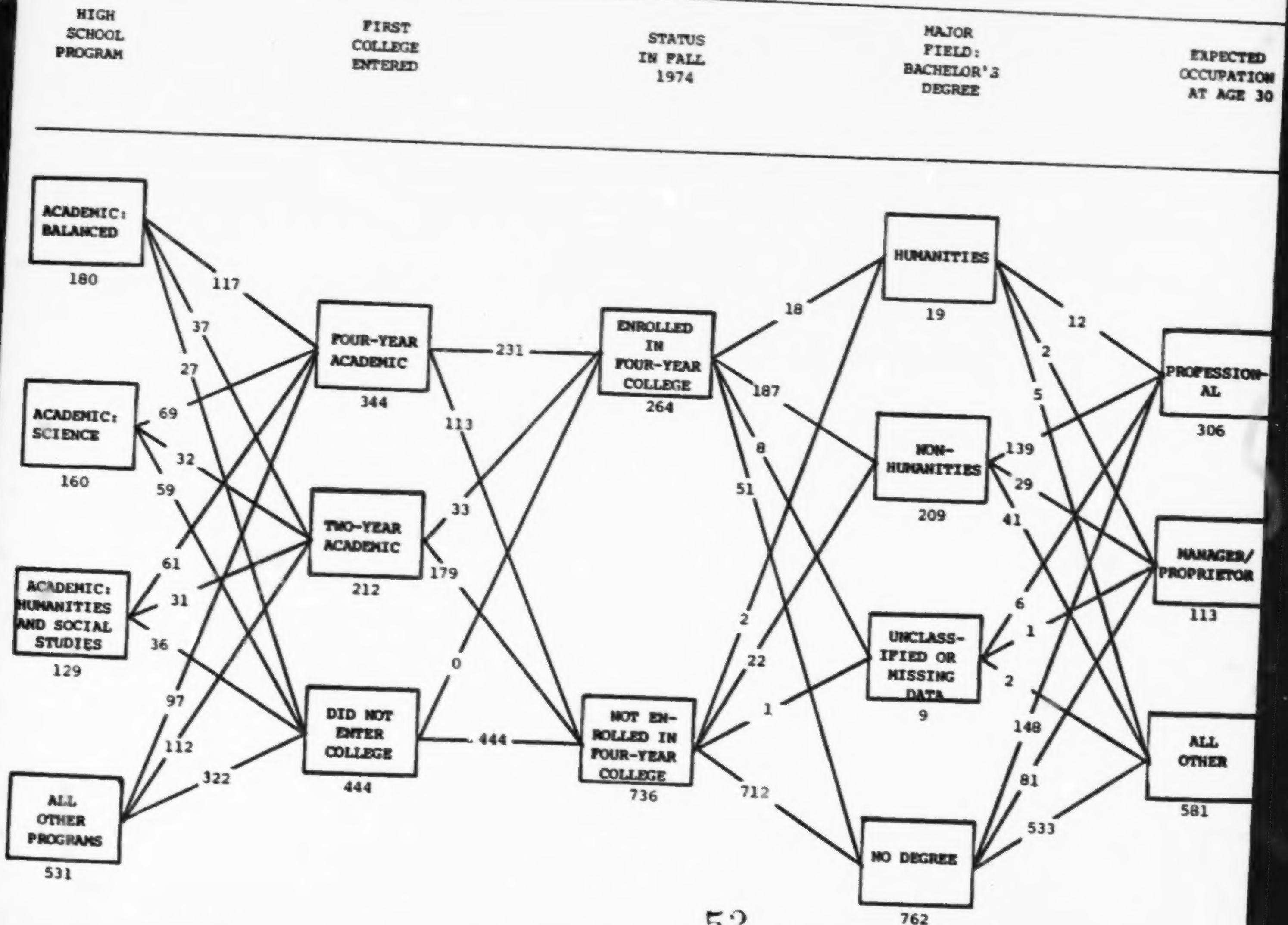
Results: Male and Female Students

A major educational trend of the past 40 years is reflected in a narrowing gap between males and females in likelihood of attending college. Accordingly, comparisons of the educational career pathways of male and female students who were high school seniors in 1972 deserve to be considered first. In this analysis, gender was determined using the composite variable available in the data base. The composite variable was based on responses to questions on the base year and three follow-up questionnaires. The analysis was based on data for 7,957 males and 8,783 females. When weights were applied, the weighted sample was composed of 49.9 percent males and 50.1 females.

When results shown in Figures 2-2 and 2-3 are compared, it is clear that males and females differ markedly with respect to high school programs. Males are slightly more likely to belong to the "Academic: Balanced" group (20% vs. 18%), noticeably more likely to belong to the Academic: Science" group (29% vs. 16%) noticeably less likely to belong to the "Academic: Humanities and Social Studies" group (6% vs. 13%) and somewhat less likely to belong to the "All Other Programs" group (46% vs. 53%). The tendency for males to be more oriented toward science than females is in accordance with expectations. However, the finding that more females belong to the "Academic: Science" group than to the "Academic: Humanities and Social Studies" group suggests that women's attitudes toward choice of high school program were probably more favorable toward science and mathematics than was formerly true. Possibly, the

Figure 2-3

Pathways for 1972 Female High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 8,783)


HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
180
ACADEMIC: SCIENCE
160
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
129
ALL OTHER PROGRAMS
531
117
37
27
69
32
59
61
31
36
97
112
322
FOUR-YEAR ACADEMIC
344
TWO-YEAR ACADEMIC
212
DID NOT ENTER COLLEGE
444
231
113
33
179
0
444
ENROLLED IN FOUR-YEAR COLLEGE
264
NOT ENROLLED IN FOUR-YEAR COLLEGE
736
18
187
8
51
2
22
1
712
HUMANITIES
19
NON-HUMANITIES
209
UNCLASSIFIED OR MISSING DATA
9
NO DEGREE
762
12
2
5
139
29
41
6
1
2
148
81
533
PROFESSIONAL
306
MANAGER/PROPRIETOR
113
ALL OTHER
581

efforts in recent years to encourage women to become interested in these subjects have been effective.

Figures 2-2 and 2-3 indicate that males in the 1972 high school senior group were somewhat more likely than females to enter and proceed through college. The following table summarizes these differences:

	Percentage of Group Who Attained Each Status	
Status	Males	Females
Entered a four-year college	38	34
Entered a two-year college	23	21
Was enrolled in a four-year college in Fall 1974	30	26
Earned a bachelor's degree by Fall 1979	27	24

In some respects, the similarity between the results for men and women may be more significant for policies in higher education than the small, though consistent, differences in favor of the men.

With respect to choice of major field among students who earned a bachelor's degree and who could be classified as humanities or nonhumanities majors, the results indicate that 7 percent (17 of 255) of males and 9 percent (19 of 218) of females chose a major classified as humanities in this study.

Results for expected occupation at age 30 show a smaller percentage of males than females expecting to follow a professional career (26% *vs*. 31%)

and a markedly larger percentage of males than of females expecting to be a manager or proprietor (24% *vs*. 11%). From Figures 2-2 and 2-3 the percentages choosing each type of occupation for male and female students who earned a bachelor's degree can be calculated. For this sample, 57 percent (151 of 266) of the males and 66 percent (157 of 237) of the females, expected to be doing professional work at age 30, and 28 percent (74 of 266) of the males and 14 percent (32 of 237) of the females expected to be managers or proprietors at age 30.

In view of the differences between males and females, both in high school program and in choice of major field, results on the relation between these two variables for the two groups separately should be useful. Table 2-3 provides the basis for the following summary showing the percentages majoring in the humanities rather than nonhumanities when students are grouped by high school program and gender:

	Percent Majoring in Humanities	
High School Programs	Male	Female
Academic: Balanced	8	9
Academic: Science	5	6
Academic: Humanities and Social Studies	11	15
All Other Programs	7	4

These percentages suggest that, except for the somewhat puzzling results for the "All Other Programs" group, both gender and high school program contribute to a decision to major in the humanities. Although the combined effect can be described as modest, it is worthy of comment that 15 percent of women in the

Table 2-3

Estimated Number Per 1,000 Male and Per 1,000 Female High School Seniors Classified by High School Program and Baccalaureate Major Field

High School Program	Group	Major Field of Bachelor's Degree: Humanities	Non-Humanities	Not Classified	No Bachelor's Degree	Total
Academic: Balanced	Male	8	97	5	86	195
	Female	9	86	3	83	180
Academic: Science	Male	4	84	3	199	290
	Female	3	45	1	111	160
Academic: Humanities and Social Studies	Male	2	17	1	40	60
	Female	6	35	2	86	129
All Other Programs	Male	3	40	2	410	455
	Female	2	45	2	482	531
Total	Male	17	238	10	734	1,000
	Female	19	209	9	762	1,000

"Academic: Humanities and Social Studies" group who earned a bachelor's degree chose humanities rather than a nonhumanities field for that major.

The probability of earning a bachelor's degree for the eight subgroups in Table 2-3 is shown in the following summary table:

	Percent Earning Bachelor's Degree	
High School Program	Male	Female
Academic: Balanced	56	54
Academic: Science	31	31
Academic: Humanities and Social Studies	33	33
All Other Programs	10	9
Total	27	24

The similarity in the pattern of relationship between high school program and percentage earning a bachelor's is remarkably similar for men and women students, although the men have a slightly higher percentage in the "Academic: Balanced" group who attain a bachelor's degree.

Table 2-4 shows results relating type of college first entered to bachelor's major for men and women. Although the results are slightly different for men and women, the differences seem too small to justify a detailed discussion.

Results: High and Low Socioeconomic Status Students

The classification of sample members on the basis of socioeconomic status (SES) was based on the SES Index developed by the Research Triangle Institute and included in the data file. It is a composite giving equal weight to father's education, mother's education, father's occupation, family income, and

Table 2-4

Estimated Number Per 1,000 Male and Per 1,000 Female High School Seniors Classified by Type of College First Entered and Baccalaureate Major Field

Type of College	Group	Major Field of Bachelor's Degree: Humanities	Non-Humanities	Not Classified	No Bachelor's Degree	Total
Four-Year Academic	Male	14	198	8	160	380
	Female	17	179	8	140	344
Two-Year Academic	Male	3	40	3	180	226
	Female	2	30	1	179	212
Did Not Enter College	Male	0	1	0	394	395
	Female	0	1	0	443	444
Total	Male	17	238	10	734	1,000
	Female	19	209	9	762	1,000

possession of selected household items. The process of constructing this index is described in Appendix K of National Longitudinal Study: Base Year (1972) through Fourth Follow-Up (1979) Data File Users Manual, pp. K.4 - K.11. It was judged that this index would provide a satisfactory basis for assessing SES for purposes of this study. The data file included a variable that identified students who were "high" and students who were "low" on SES. In the sample for this analysis, there were 4,051 students in the High SES group. This group constituted 25.4 percent of the weighted sample. The Low SES group included 4,599 students and constituted 24.6 percent of the weighted sample. Thus, the high group can be considered to be the top quarter of the students in SES as defined in this study and the low group can be considered to be the low quarter of the group.

That socioeconomic status is related to college attendance is well known. The present data make it possible to compare high and low SES students at each stage of their college careers. The following percentages based on the data of Figures 2-4 and 2-5 indicate the extent of difference between high and low SES students for students who were high school seniors in 1972:

	Percent Attaining Each Status	
Status	Low SES	High SES
Took an "Academic: Balanced" program in high school	9	31
First entered a four-year college	20	62
First entered a two-year college	17	23
Enrolled in a four-year college in fall 1974	13	53
Earned a bachelor's degree	10	49
Expected to be a professional at age 30	19	44

Figure 2-4

Pathways for 1972 High Socioeconomic Status High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 4,051)

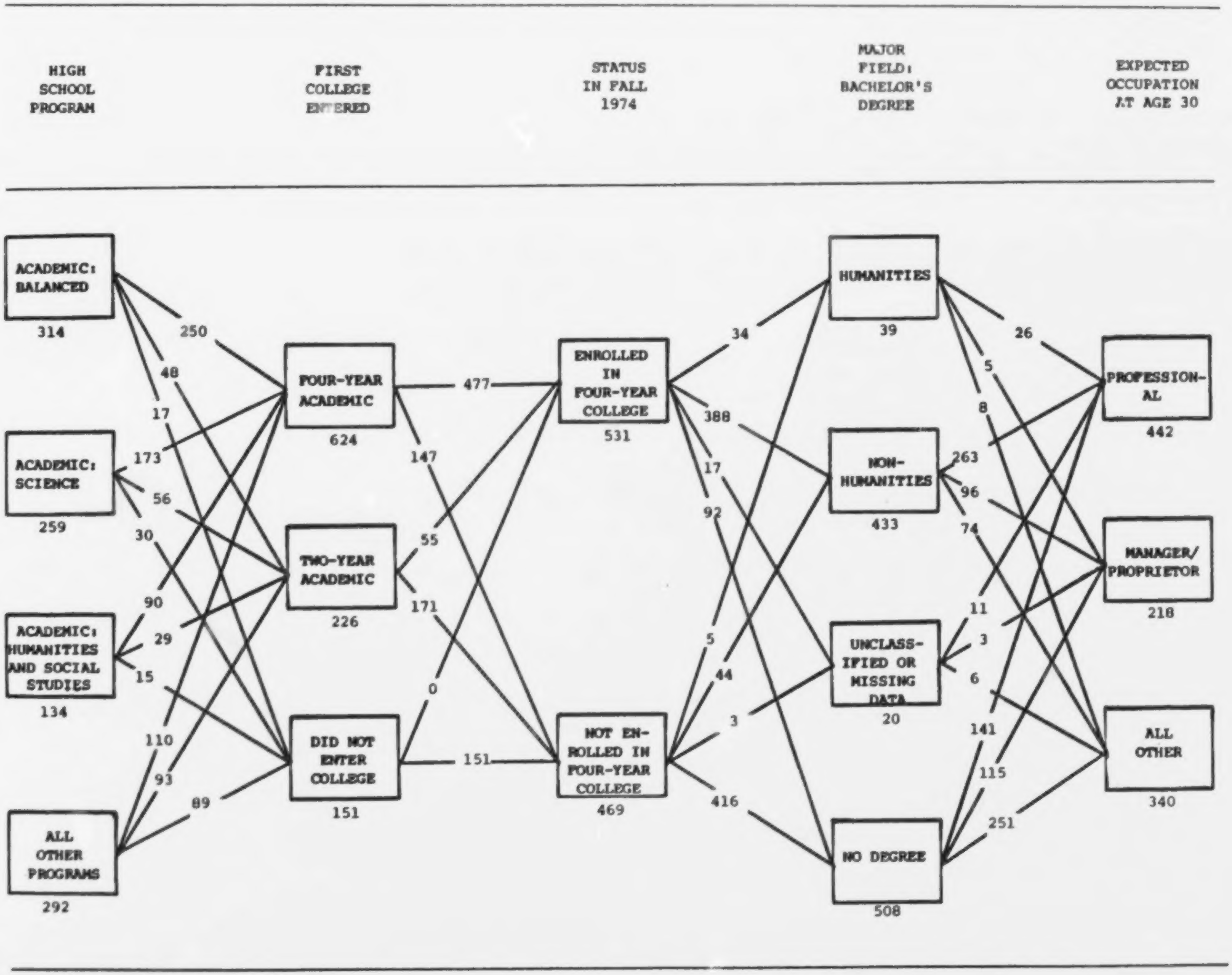

HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
314
ACADEMIC: SCIENCE
259
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
134
ALL OTHER PROGRAMS
292
250
48
17
173
56
30
90
29
15
110
93
89
FOUR-YEAR ACADEMIC
624
TWO-YEAR ACADEMIC
226
DID NOT ENTER COLLEGE
151
477
147
55
171
0
151
ENROLLED IN FOUR-YEAR COLLEGE
531
NOT ENROLLED IN FOUR-YEAR COLLEGE
469
34
388
17
92
5
44
3
416
HUMANITIES
39
NON-HUMANITIES
433
UNCLASSIFIED OR MISSING DATA
20
NO DEGREE
508
26
5
8
263
96
74
11
3
6
141
115
251
PROFESSIONAL
442
MANAGER/PROPRIETOR
218
ALL OTHER
340

Figure 2-5

Pathways for 1972 Low Socioeconomic Status High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 4,599)

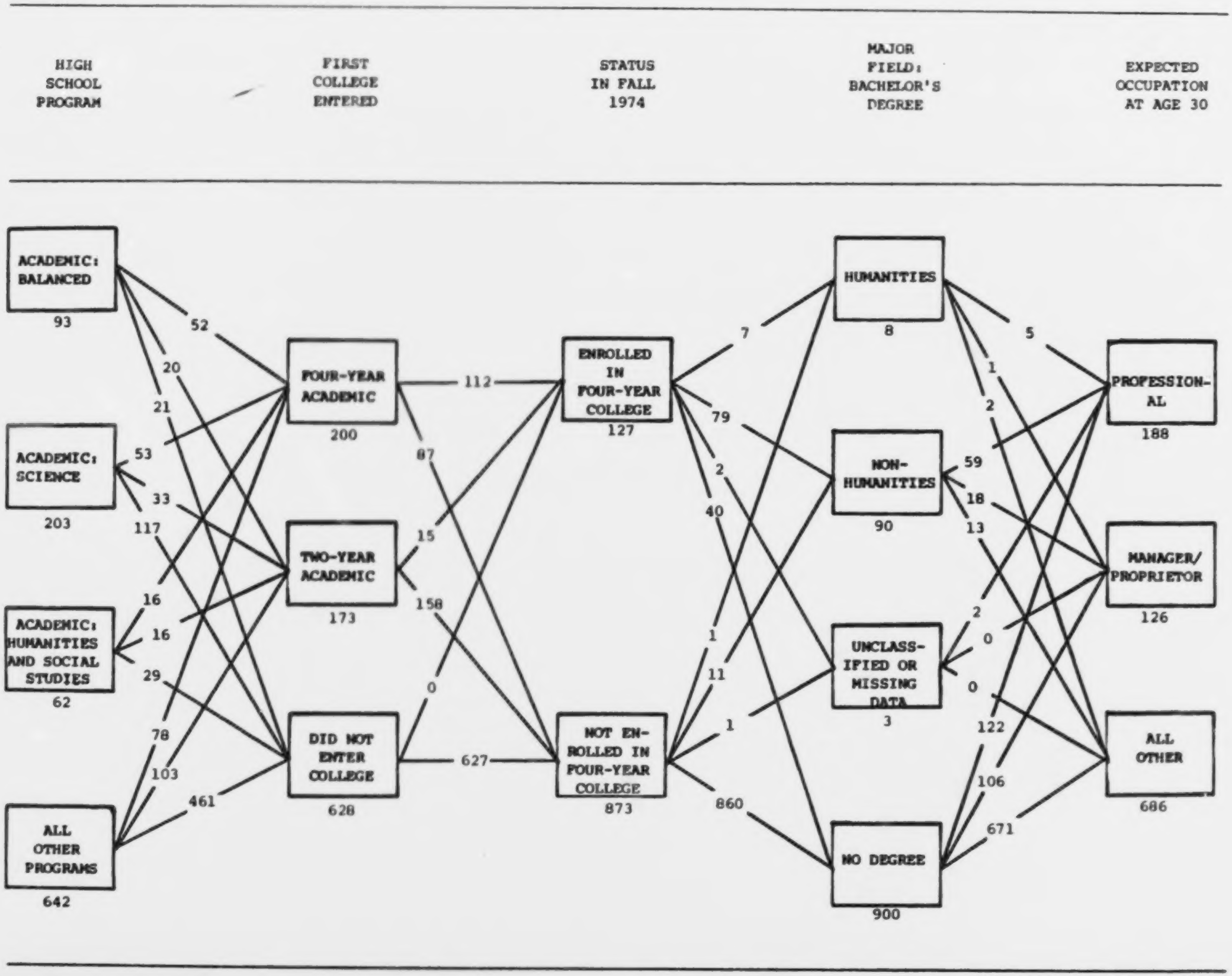

HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
93
ACADEMIC: SCIENCE
203
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
62
ALL OTHER PROGRAMS
642
FOUR-YEAR ACADEMIC
200
TWO-YEAR ACADEMIC
173
DID NOT ENTER COLLEGE
628
ENROLLED IN FOUR-YEAR COLLEGE
127
NOT ENROLLED IN FOUR-YEAR COLLEGE
873
HUMANITIES
8
NON-HUMANITIES
90
UNCLASSIFIED OR MISSING DATA
3
NO DEGREE
900
PROFESSIONAL
188
MANAGER/PROPRIETOR
126
ALL OTHER
686
52
20
21
53
33
117
16
16
29
78
103
461
112
87
15
158
0
627
7
79
2
40
1
11
1
860
5
1
2
59
18
13
2
0
0
122
106
671

Table 2-5 shows the relation of High School Program to bachelor's major for the High and Low SES groups. Differences between the two groups with respect to the choice of a humanities major rather than a nonhumanities major are relatively small. For example, 8 percent of both the High and Low SES groups who received bachelor's degrees (25%) chose a humanities major.

The relation of high school program and SES to attainment of a bachelor's degree is shown in the following table based on Table 2-5.

	Percent Earning Bachelor's Degree	
High School Program	Low SES	High SES
Academic: Balanced	39	70
Academic: Science	14	50
Academic: Humanities and Social Studies	18	50
All Other Programs	4	26
All Programs	10	49

Clearly, SES and high school program supplement each other in predicting attainment of a bachelor's degree. Thus, 70 percent of the students in the High SES group who took an "Academic: Balanced" program earned a bachelor's degree while only 4 percent of the students in the Low SES group and who were in the "All Other Programs" group earned a bachelor's degree. It is also worthy of note that 39 percent of Low SES students who took an "Academic: Balanced" program earned a bachelor's degree while only 26 percent of High SES students who were in the "All Other Programs" group earned a bachelor's degree. Furthermore, the percent of Low SES students who took an "Academic: Balanced" program who earned a bachelor's degree (39%) is appreciably higher

Table 2-5

Estimated Number Per 1,000 High Socioeconomic Status and Per 1,000 Low Socioeconomic Status High School Seniors Classified by High School Program and by Baccalaureate Major Field

High School Program	Group	Major Field of Bachelor's Degree: Humanities	Non-Humanities	Not Classified	No Bachelor's Degree	Total
Academic: Balanced	High SES	19	193	8	94	314
	Low SES	4	32	1	57	93
Academic: Science	High SES	6	119	5	130	259
	Low SES	2	27	0	174	203
Academic: Humanities and Social Studies	High SES	10	54	3	67	134
	Low SES	1	9	0	51	62
All Other Programs	High SES	4	67	4	217	292
	Low SES	1	22	1	617	642
Total	High SES	39	433	20	508	1,000
	Low SES	8	90	3	900	1,000

than the percent of high school seniors generally who earned a bachelor's degree (25%).

To summarize the complex interaction of High School Program and SES, the following list is presented:

	Percent Earning Bachelor's Degree
All Low SES seniors in All Other Programs	4
All seniors in All Other Programs	9
All Low SES seniors	10
All high school seniors	25
All High SES seniors in All Other Programs	26
All Low SES seniors in Academic: Balanced Programs	39
All High SES seniors	49
All seniors in Academic: Balanced Programs	55
All High SES seniors in Academic: Balanced Programs	70

These results suggest that, of the two variables in question, High School Program is the more powerful determinant of degree attainment.

Results shown in Table 2-6 relate Type of College First Entered for the High and Low SES group. With respect to earning a bachelor's degree, the following percentages can be obtained from Table 2-6:

	Percent Earning Bachelor's Degree	
Type of College First Entered	Low SES	High SES
Four-year college	42	69
Two-year college	10	27

Table 2-6

Estimated Number Per 1,000 High Socioeconomic Status and Per 1,000 Low Socioeconomic Status High School Seniors Classified by Type of College First Entered and by Baccalaureate Major Field

Type of College	Group	Major Field of Bachelor's Degree: Humanities	Major Field of Bachelor's Degree: Non-Humanities	Major Field of Bachelor's Degree: Not Classified	No Bachelor's Degree	Total
Four-Year Academic	High SES	35	378	17	194	624
	Low SES	7	75	2	116	200
Two-Year Academic	High SES	5	54	4	164	226
	Low SES	1	15	1	156	173
Did Not Enter College	High SES	0	1	0	150	151
	Low SES	0	0	0	627	628
Total	High SES	39	433	20	508	1,000
	Low SES	8	90	3	900	1,000

Although causal relationships cannot safely be inferred from these results, it is worthy of comment that only 27 percent of High SES students who first entered a two-year college earned a bachelor's degree, a figure only slightly higher than the 25 percent graduating from college for high school seniors generally.

Results: White, Black, and Hispanic Students

The variable describing ethnic group membership was based on responses concerning race in the base-year, first and second follow-up questionnaires, as described on pages D.61 and D.63 of the Data File Users Manual for NLS:Base Year (1972) through Fourth Follow-up (1979). The sample for this study included 13,331 White students (82.3% of the weighted sample), 1,995 Black students (9.3% of the weighted sample) and 639 Hispanic students (3.4% of the weighted sample). The following table based on Figures 2-6, 2-7, and 2-8 provides some idea of the academic progress of the three groups of 1972 high school seniors:

	Percent Attaining Each Status		
Status	White	Black	Hispanic
Took an "Academic: Balanced" program in high school	20	12	14
First entered a four-year college	38	35	21
First entered a two-year college	22	19	32
Enrolled in a four-year college in fall 1974	30	24	15
Earned a bachelor's degree	27	18	11
Expected to be a professional at age 30	28	29	24

Figure 2-6

Pathways for 1972 White High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 13,331)

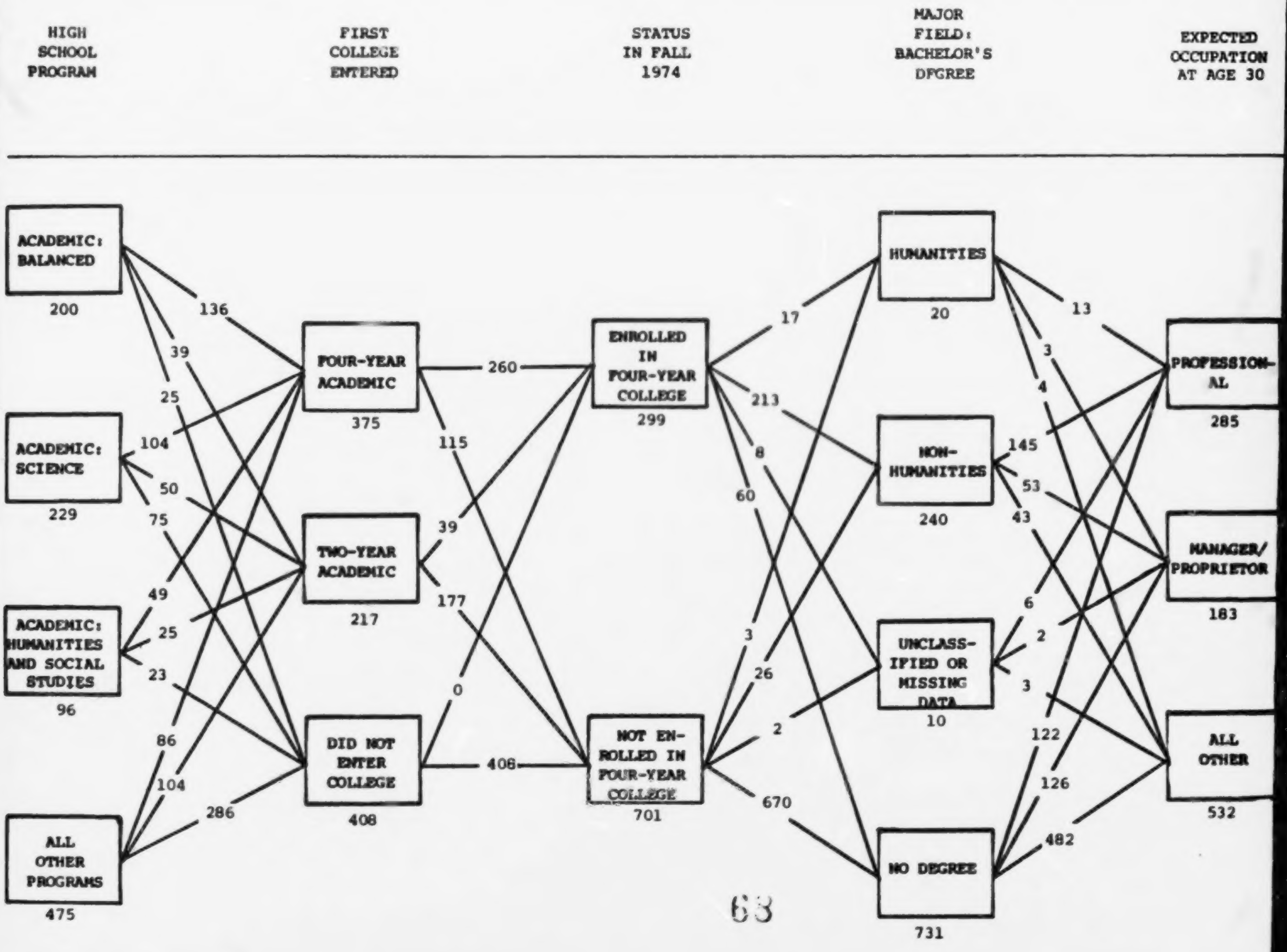

HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
200
ACADEMIC: SCIENCE
229
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
96
ALL OTHER PROGRAMS
475
136
39
25
104
50
75
49
25
23
86
104
286
FOUR-YEAR ACADEMIC
375
TWO-YEAR ACADEMIC
217
DID NOT ENTER COLLEGE
408
260
115
39
177
0
408
ENROLLED IN FOUR-YEAR COLLEGE
299
NOT ENROLLED IN FOUR-YEAR COLLEGE
701
17
213
8
60
3
26
2
670
HUMANITIES
20
NON-HUMANITIES
240
UNCLASSIFIED OR MISSING DATA
10
NO DEGREE
731
13
3
4
145
53
43
6
2
3
122
126
482
PROFESSIONAL
285
MANAGER/PROPRIETOR
183
ALL OTHER
532

Figure 2-7

Pathways for 1972 Black High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = ',995)

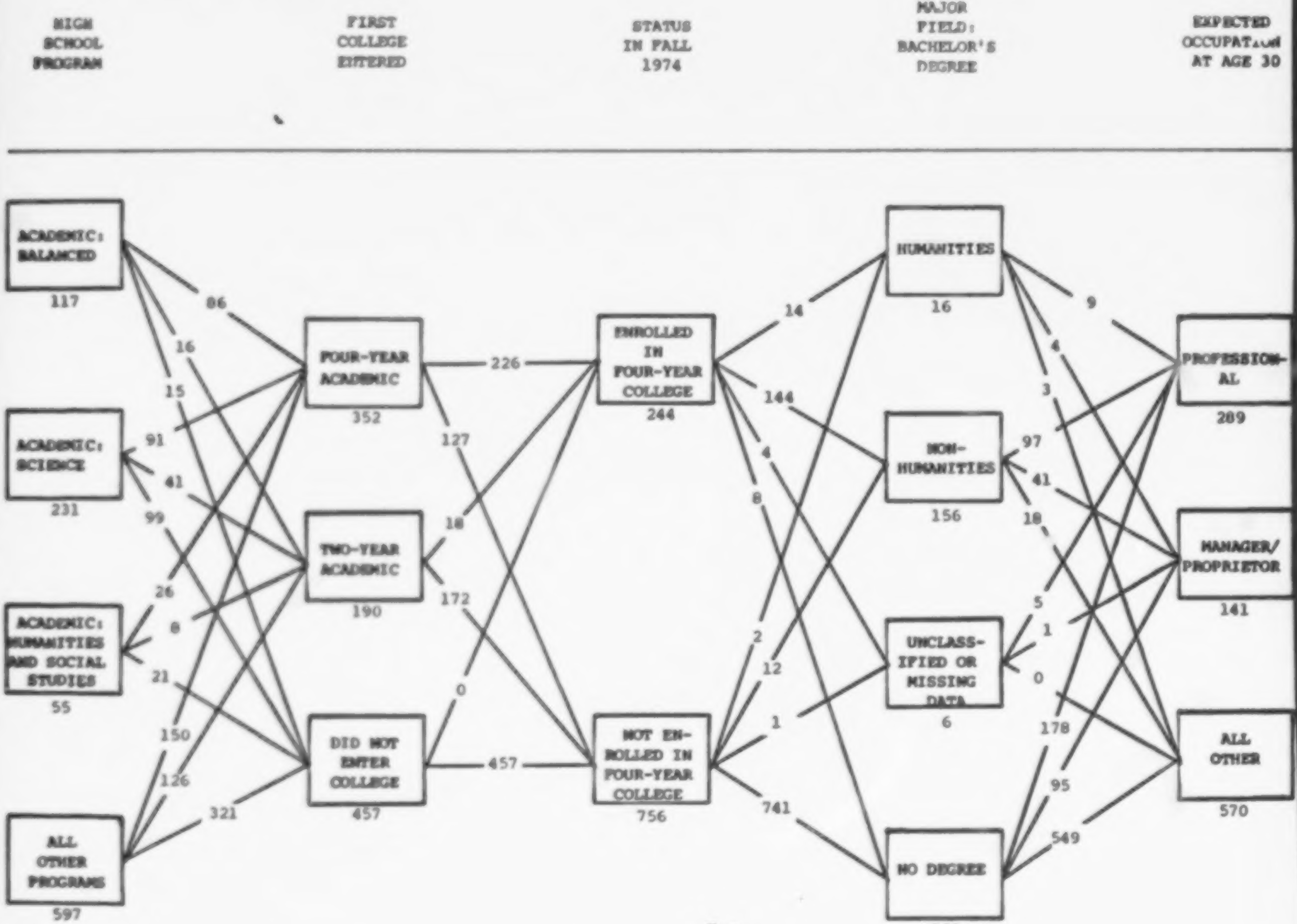
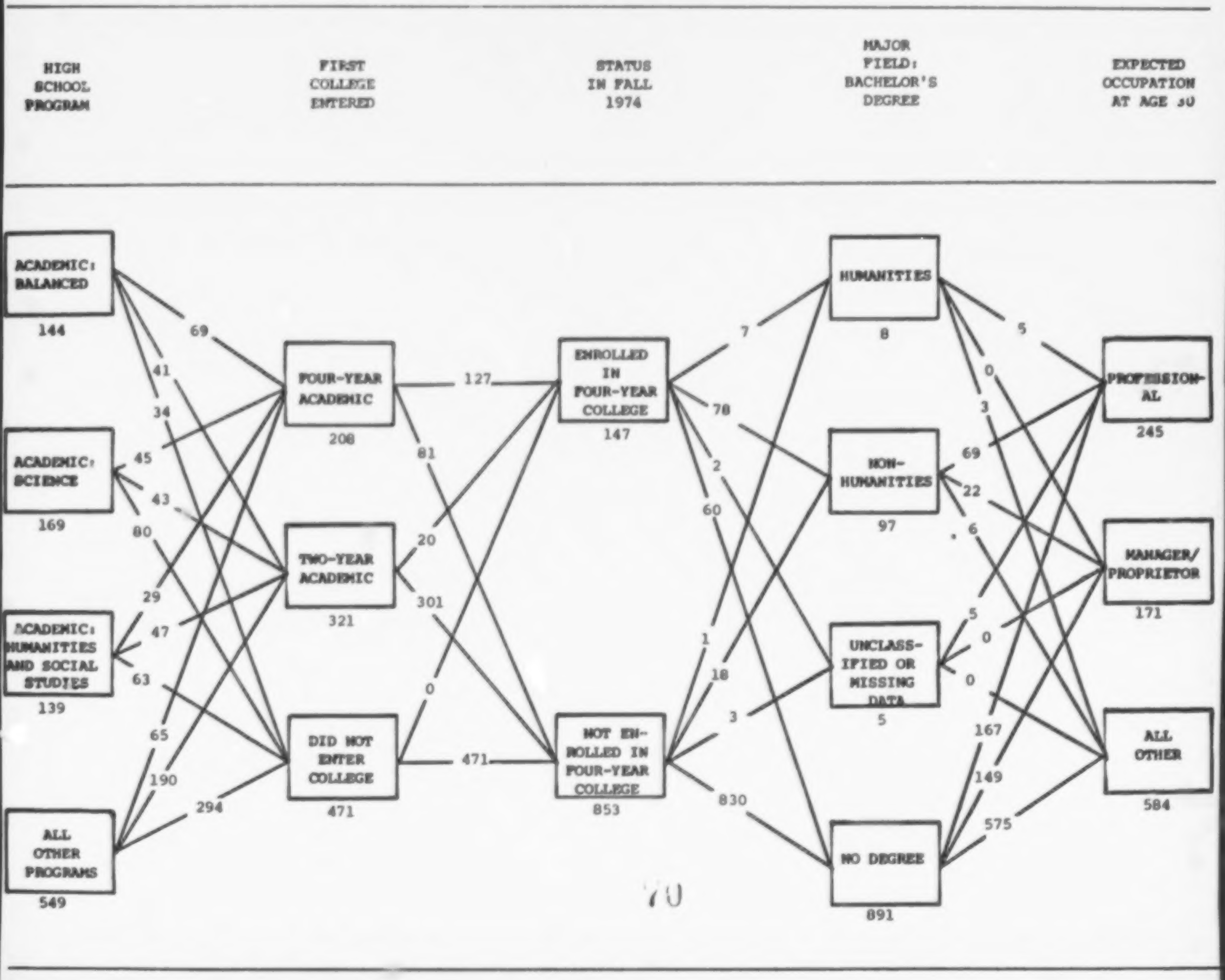

HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
117
ACADEMIC: SCIENCE
231
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
55
ALL OTHER PROGRAMS
597
86
16
15
91
41
99
26
8
21
150
126
321
FOUR-YEAR ACADEMIC
352
TWO-YEAR ACADEMIC
190
DID NOT ENTER COLLEGE
457
226
127
18
172
0
457
ENROLLED IN FOUR-YEAR COLLEGE
244
NOT ENROLLED IN FOUR-YEAR COLLEGE
756
14
144
4
8
2
12
1
741
HUMANITIES
16
NON-HUMANITIES
156
UNCLASSIFIED OR MISSING DATA
6
NO DEGREE
822
9
4
3
97
41
18
5
1
0
178
95
549
PROFESSIONAL
289
MANAGER/ PROPRIETOR
141
ALL OTHER
570

Figure 2-8

Pathways for 1972 Hispanic High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (N = 639)


HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
144
ACADEMIC: SCIENCE
169
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
139
ALL OTHER PROGRAMS
549
69
41
34
45
43
80
29
47
63
65
190
294
FOUR-YEAR ACADEMIC
208
TWO-YEAR ACADEMIC
321
DID NOT ENTER COLLEGE
471
127
81
20
301
0
471
ENROLLED IN FOUR-YEAR COLLEGE
147
NOT ENROLLED IN FOUR-YEAR COLLEGE
853
7
78
2
60
1
18
3
830
HUMANITIES
8
NON-HUMANITIES
97
UNCLASSIFIED OR MISSING DATA
5
NO DEGREE
891
5
0
3
69
22
6
5
0
0
167
149
575
PROFESSIONAL
245
MANAGER/PROPRIETOR
171
ALL OTHER
584

These results indicate that access to college for Black students was separated only by a narrow gap from access for White students. With respect to earning a bachelor's degree, however, only 18 percent of Blacks achieved this level. This figure is substantially lower than the 27 percent rate achieved by Whites. In this sample, Hispanics were noticeably less likely than the other groups to enter a four-year college and noticeably more likely than the other groups to enter a two-year college. Only 11 percent of the Hispanic group had attained a bachelor's degree by 1979.

The high school academic background of members of the three ethnic groups who first entered four-year colleges can be obtained from Figures 2-6, 2-7, and 2-8.

	Percent of Four-Year College Entrants Who Were in Each Program Group		
High School Programs	White	Black	Hispanic
Academic: Balanced	36	24	33
Academic: Science	28	26	22
Academic: Humanities and Social Studies	13	7	14
All Other Programs	23	42	31
Total	100	99	100

To the extent that the high school program measures academic preparation for college work, these results suggest that Blacks entering four-year colleges were somewhat less well prepared than the other two groups.

The relation between high school program and choice of bachelor's major is shown in Table 2-7. Considering the totals for the three groups of students who earned the bachelor's degree and who could be classified as humanities or

Table 2-7

Estimated Number Per 1,000 White, Per 1,000 Black, and Per 1,000 Hispanic High School Seniors Classified by High School Program and by Baccalaureate Major Field

High School Program	Group	Major Field of Bachelor's Degree: Humanities	Non-Humanities	Not Classified	No Bachelor's Degree	Total
Academic: Balanced	White	9	101	4	86	200
	Black	7	43	1	66	117
	Hispanic	7	33	3	101	144
Academic: Science	White	4	68	2	155	229
	Black	5	48	0	177	231
	Hispanic	1	20	2	146	169
Academic: Humanities and Social Studies	White	5	28	1	63	96
	Black	2	12	1	40	55
	Hispanic	0	13	0	126	139
All Other Programs	White	2	43	2	427	475
	Black	2	53	3	539	597
	Hispanic	0	30	0	518	549
Total	White	20	240	10	731	1,000
	Black	16	156	6	822	1,000
	Hispanic	8	97	5	891	1,000

nonhumanities majors, 8 percent of Whites, 9 percent of Blacks and 7 percent of Hispanics chose a humanities major. Thus, for students who earned a bachelor's degree in this sample, the probability of choosing a humanities major is about equal for the three groups.

Detailed comparisons of Hispanic students with the other groups are of very limited value because the Hispanic group in this sample includes only 639 students and the number who earned a bachelor's degree is only 74. Clearly, results based on subgroups of the bachelor's degree group would be subject to large sampling error. For the Black group, which includes 1,995 students, the sample size for the bachelor's group is 359. By combining the three high school programs designated as academic, it was possible to calculate the percentage of humanities majors for the three ethnic groups. It turned out that 8 percent (18 of 215) of White students, 12 percent (14 of 117) of Black students, and 11 percent (8 of 74) of Hispanic students majored in a humanities field. (Actual sample size was 2,914 for White students, 230 for Black students and 50 for Hispanic students.) These results suggest that Black and Hispanic students who had good academic preparation in high school were somewhat more likely to major in humanities than were White students.

Table 2-7 permits a similar comparison for likelihood of earning a bachelor's degree for students who were members of one of the three "academic" groups on the basis of their high school program. It turned out that for students in the three combined groups, 42 percent (222 of 526) of White students, 30 percent of Black students (119 of 402), and 17 percent (79 of 452) of Hispanic students earned bachelor's degrees.

Table 2-8 provides a basis for comparing the three ethnic groups on the likelihood of majoring in humanities for students who first entered a

Table 2-8

Estimated Number Per 1,000 White, Per 1,000 Black, and Per 1,000 Hispanic High School Seniors Classified by Type of College First Entered and by Baccalaureate Major Field

		Major Field of Bachelor's Degree				
Type of College	Group	Humanities	Non-Humanities	Not Classified	No Bachelor's Degree	Total
Four-Year Academic	White	17	202	8	148	375
	Black	14	138	4	195	352
	Hispanic	5	71	2	130	208
Two-Year Academic	White	3	38	2	175	217
	Black	1	18	1	170	190
	Hispanic	3	25	3	289	321
Did Not Enter College	White	0	0	0	408	408
	Black	0	0	0	457	457
	Hispanic	0	0	0	471	471
Total	White	20	240	10	731	1,000
	Black	16	156	6	822	1,000
	Hispanic	8	97	5	891	1,000

four-year college. For this group, 8 percent of the White students, 9 percent of the Black students, and 7 percent of the Hispanic students chose a humanities major. These percentages are the same as those found for all members of the ethnic groups in the study sample. It appears that for students whose first college is a four-year institution, the three ethnic groups are about equally likely to major in humanities. It is also possible to calculate the percentage earning bachelor's degrees for the two types of college and the three ethnic groups. Results are as follows:

	Percent Earning Bachelor's Degree		
Type of College First Entered	White	Black	Hispanic
Four-year college	61	45	38
Two-year college	19	11	10

It could perhaps be conjectured that Black and Hispanic students who first enter a two-year college may be more likely than White students to enroll in programs that do not lead to transfer to a four-year college.

Results: High Ability Students

For this study, high ability was defined in three ways:

1. Using the ability composite included in the data file,
2. Using the sum of standard scores on the Reading and Vocabulary tests, and
3. Using standard scores on the Mathematics test.

The composite included in the data file gave equal weight to Vocabulary, Reading, Mathematics, and Letter Groups. The procedure for developing this composite is described on pages K.1 - K.3 of the NLS Data File Users Manual (June, 1981). Each of these three ability measures was used to identify a high-scoring group. For the composite Ability variable, the high group included 3,470 students (21.8% of the weighted sample). For the High Verbal variable, the high group included 3,431 students (21.7% of the weighted sample). For the High Mathematical variable, the high group included 3,928 students (24.5% of the weighted sample). It was judged that the variation in the percentages for the three groups was acceptable for purposes of this study.

Figures 2-9, 2-10, and 2-11 show the results for those three ways of defining high ability. In general, the differences in results are relatively small. The following results illustrate this point:

	Percent Attaining Each Status		
Status	High Ability	High Verbal	High Mathematical
Percentage who entered college	85	82	83
Percentage who earned a bachelor's degree	52	48	50

It is plausible that the high ability groups defined by these three variables would differ somewhat in their choice of high school program. The following table provides evidence on this question:

	Percent Choosing Each High School Program		
High School Programs	High Ability	High Verbal	High Mathematical
Academic: Balanced	40	36	38
Academic: Science	28	26	32
Academic: Humanities and Social Studies	13	14	10
Academic: All Other Programs	20	24	21
Total	101	100	101

Figure 2-9

Pathways for 1972 High Ability High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 3,470)

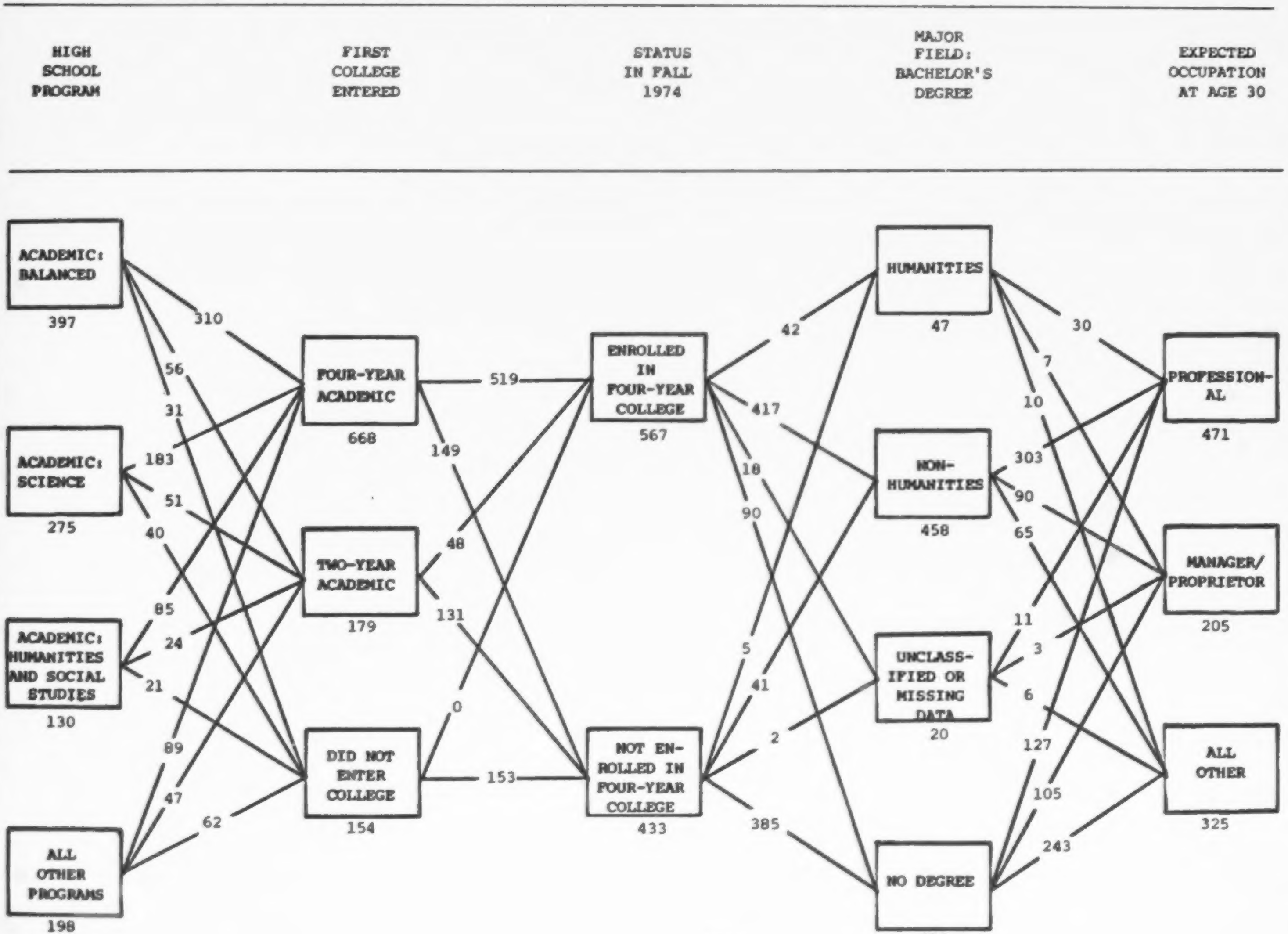

HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
397
ACADEMIC: SCIENCE
275
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
130
ALL OTHER PROGRAMS
198
310
56
31
183
51
40
85
24
21
89
47
62
FOUR-YEAR ACADEMIC
668
TWO-YEAR ACADEMIC
179
DID NOT ENTER COLLEGE
154
519
149
48
131
0
153
ENROLLED IN FOUR-YEAR COLLEGE
567
NOT EN-ROLLED IN FOUR-YEAR COLLEGE
433
42
417
18
90
5
41
2
385
HUMANITIES
47
NON-HUMANITIES
458
UNCLASS-IFIED OR MISSING DATA
20
NO DEGREE
475
30
7
10
303
90
65
11
3
6
127
105
243
PROFESSION-AL
471
MANAGER/PROPRIETOR
205
ALL OTHER
325

Figure 2-10

Pathways for 1972 High Verbal Ability High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 3,431)

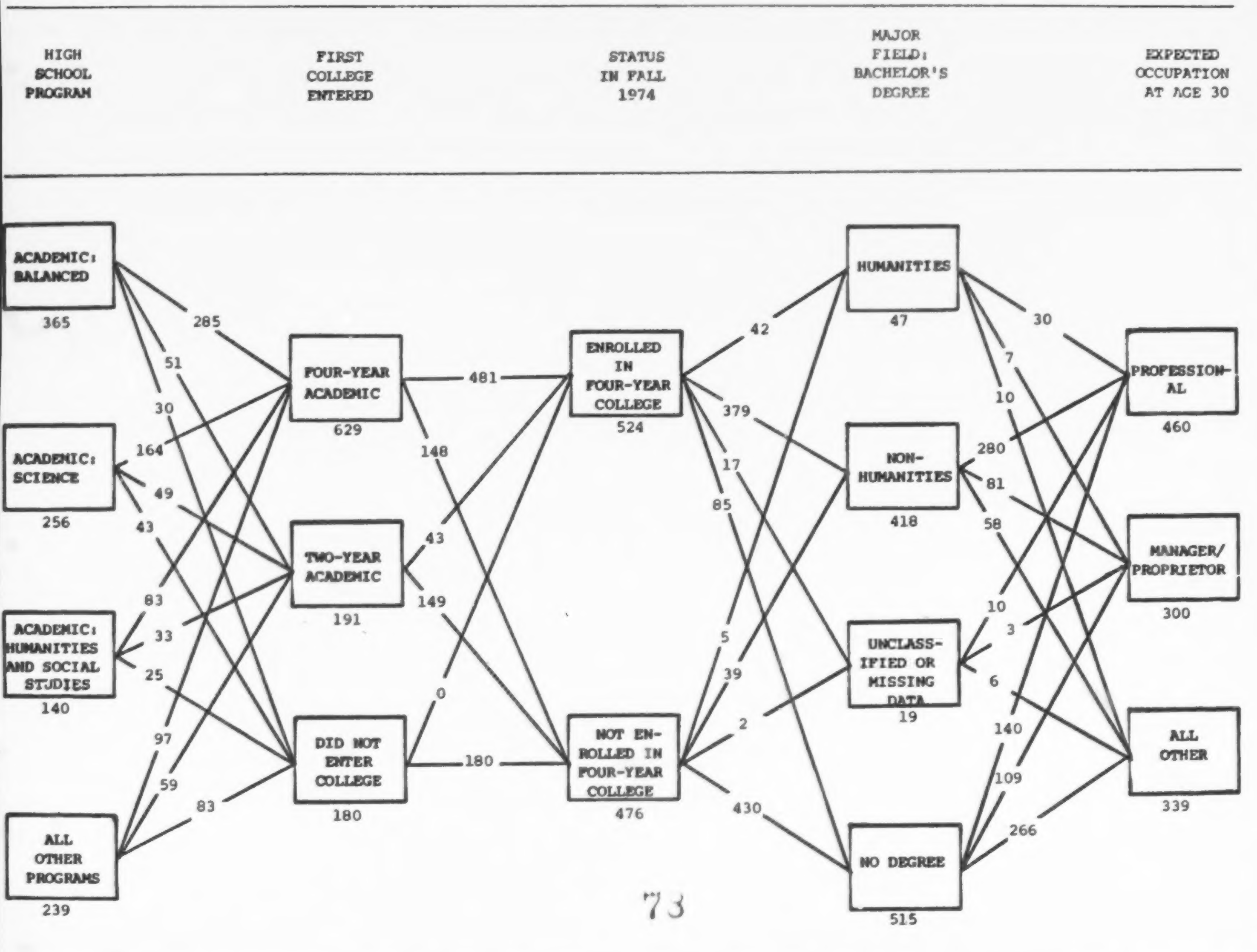
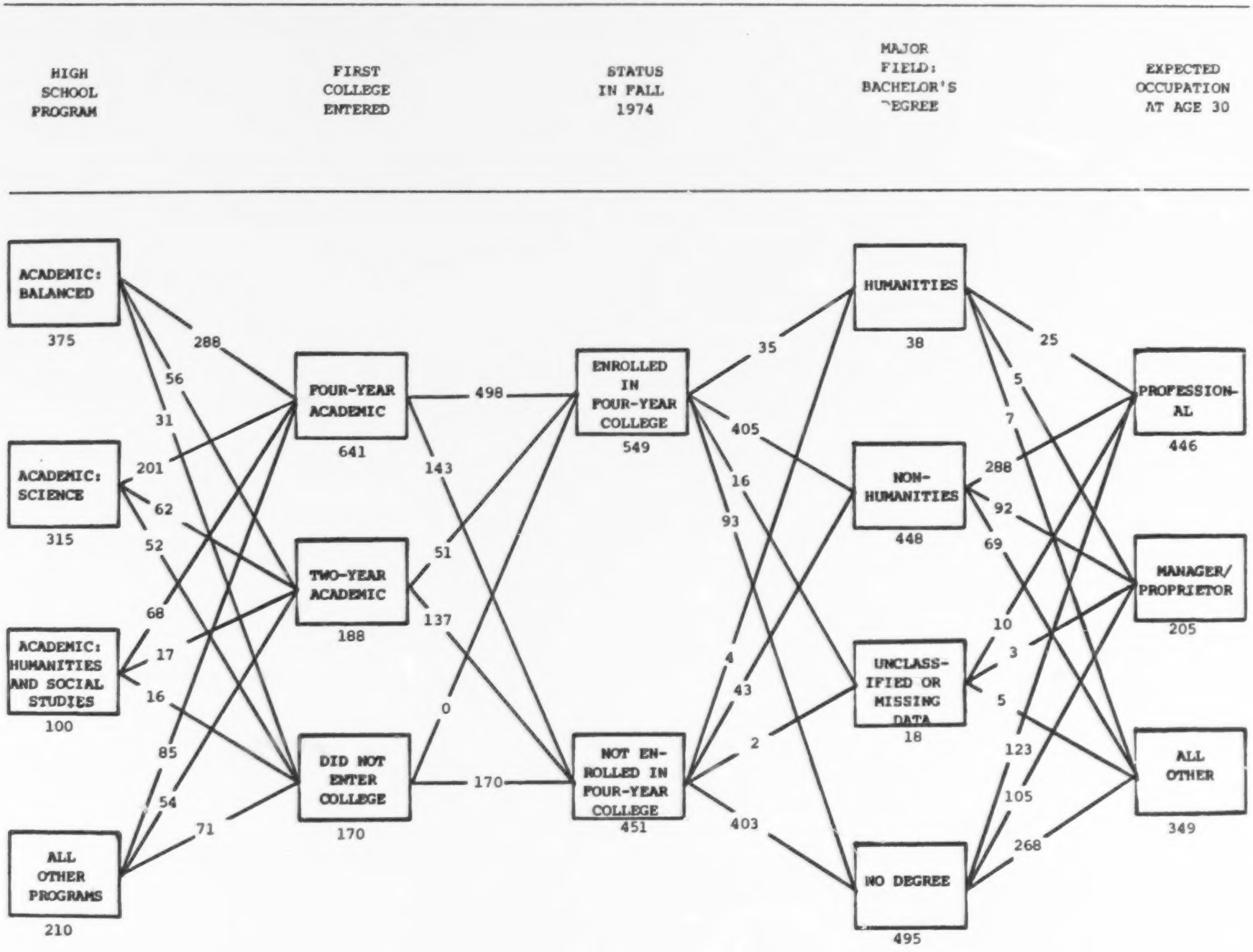

HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
365
ACADEMIC: SCIENCE
256
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
140
ALL OTHER PROGRAMS
239
285
51
30
164
49
43
83
33
25
97
59
83
FOUR-YEAR ACADEMIC
629
TWO-YEAR ACADEMIC
191
DID NOT ENTER COLLEGE
180
481
148
43
149
0
180
ENROLLED IN FOUR-YEAR COLLEGE
524
NOT ENROLLED IN FOUR-YEAR COLLEGE
476
42
379
17
85
5
39
2
430
HUMANITIES
47
NON-HUMANITIES
418
UNCLASSIFIED OR MISSING DATA
19
NO DEGREE
515
30
7
10
280
81
58
10
3
6
140
109
266
PROFESSIONAL
460
MANAGER/PROPRIETOR
300
ALL OTHER
339

Figure 2-11

Pathways for 1972 High Mathematical Ability High School Seniors: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 3,928)


HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
375
ACADEMIC: SCIENCE
315
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
100
ALL OTHER PROGRAMS
210
288
56
31
201
62
52
68
17
16
85
54
71
FOUR-YEAR ACADEMIC
641
TWO-YEAR ACADEMIC
188
DID NOT ENTER COLLEGE
170
498
143
51
137
0
170
ENROLLED IN FOUR-YEAR COLLEGE
549
NOT ENROLLED IN FOUR-YEAR COLLEGE
451
35
405
16
93
4
43
2
403
HUMANITIES
38
NON-HUMANITIES
448
UNCLASSIFIED OR MISSING DATA
18
NO DEGREE
495
25
5
7
288
92
69
10
3
5
123
105
268
PROFESSIONAL
446
MANAGER/PROPRIETOR
205
ALL OTHER
349

The results show a modest tendency for the High Mathematical group to be more likely to take an "Academic: Science" program than the High Verbal group, while the High Verbal group is more likely to take an "Academic: Humanities and Social Studies" program than the High Mathematical group. However, the "Academic: Balanced" program is most popular for all three groups by a substantial margin.

Among students who earned bachelor's degrees in the three groups, the percentage choosing a humanities rather than a nonhumanities field is 9 percent (47 of 505) for the High Ability group, 10 percent (47 of 465) for the High Verbal group, and 8 percent (38 of 486) for the High Mathematical group. The differences, though not large, are in the expected directions.

Table 2-9 shows the major field or the bachelor's degree in relation to high school programs for the three ways of defining ability. For the High Ability group, the percentage majoring in humanities rather than nonhumanities fields is: 10 percent (25 of 252) for the "Academic: Balanced" group, 5 percent (7 of 136) for the "Academic: Science" group, 18 percent (10 of 57) for the "Humanities and Social Studies" group and 8 percent (5 of 59) for the "All Other Programs" group. The results indicate that high school program is clearly related to choice of college major for high ability students. The joint effect of ability level and high school program on probability of college graduation is shown in the following summary, based on Tables 2-1, 2-5, and 2-9.

Table 2-9

Estimated Number Per 1,000 High Ability, Per 1,000 High Verbal Ability, and Per 1,000 High Mathematical Ability High School Seniors Classified by High School Program and by Baccalaureate Major Field

High School Program	Group	Major Field of Bachelor's Degree Humanities	Non-Humanities	Not Classified	No Bachelor's Degree	Total
Academic: Balanced	High Ability	25	227	11	134	397
	High Verbal	24	203	10	128	365
	High Mathematical	21	216	9	129	375
Academic: Science	High Ability	7	129	4	135	275
	High Verbal	7	114	3	132	256
	High Mathematical	6	141	4	163	315
Academic: Humanities and Social Studies	High Ability	10	47	2	70	130
	High Verbal	11	48	2	79	140
	High Mathematical	6	38	2	54	100
All Other Programs	High Ability	5	54	3	136	198
	High Verbal	5	53	4	176	239
	High Mathematical	5	53	3	149	210
Total	High Ability	47	458	20	475	1,000
	High Verbal	47	418	19	515	1,000
	High Mathematical	38	448	18	495	1,000

High School Program	Percent Earning Bachelor's Degree Total H.S. Senior Group	 High Ability Group	 High SES Group
Academic: Balanced	55	66	70
Academic: Science	31	51	50
Academic: Humanities and Social Studies	33	46	50
All Other Programs	9	31	26
All Programs	25	52	49

Clearly, all three of the variables on which this table is based are related to the probability that a student will complete college.

Table 2-10 shows the relation of Type of College first entered to Major Field of Bachelor's Degree for students in the High Ability, High Verbal, and High Mathematical groups. For the High Ability group, the percent choosing a major in humanities rather than nonhumanities is 9 percent for students who first entered a four-year college and 10 percent for students who first entered a two-year college. The difference is small.

Among High Ability students who first entered a four-year college, 71 percent earned a bachelor's degree. For High Ability students who first entered a two-year college, the corresponding percentage was only 28.

Results: High Ability White and High Ability Black Students

The two groups in this comparison were defined using the composite variable for ethnic group member and the composite measure of ability based on four tests, both provided in the data file. The White sample included 3,252 students (20.5% of the weighted high school senior sample) but the Black sample included only 49 students (0.2% of the weighted sample). In the weighted

Table 2-10

Estimated Number Per 1,000 High Ability, Per 1,000 High Verbal Ability, and Per 1,000 High Mathematical Ability High School Seniors Classified by Type of College First Entered and by Baccalaureate Major Field

Type of College	Group	Major Field of Bachelor's Degree: Humanities	Non-Humanities	Not Classified	No Bachelor's Degree	Total
Four-Year Academic	High Ability	42	414	18	194	668
	High Verbal	41	380	18	190	629
	High Mathematical	34	399	16	191	641
Two-Year Academic	High Ability	5	44	2	128	179
	High Verbal	5	38	2	146	191
	High Mathematical	4	48	2	135	188
Did Not Enter College	High Ability	0	1	0	153	154
	High Verbal	0	1	0	179	180
	High Mathematical	0	1	0	169	170
Total	High Ability	47	458	20	475	1,000
	High Verbal	47	418	19	515	1,000
	High Mathematical	38	448	18	495	1,000

sample, 2.6 percent of Black students and 24.9 percent of White students are in the High Ability group. For Hispanic students, only 28 of the 634 Hispanic students in the study sample were in the High Ability group. The small sample sizes for the Black and Hispanic student group led to a decision that Black group results should be reported only as percentages in each category of the five pathway variables, and that results for the Hispanic group should not be reported.

Figure 2-12 shows percentages in each category for Black and White students in the High Ability group. Although the small sample size for the Black group makes the percentages subject to relatively large sampling error, the following results deserve consideration:

	Percent Attaining Each Status	
Status	Black	White
Took an "Academic: Balanced" program in high school	45	40
First entered a four-year academic college	84	67
First entered a two-year academic college	12	18
Was enrolled in a four-year college in fall 1984	73	56
Earned a bachelor's degree	68	52

Even when account is taken of the limitations resulting from small sample size, these results indicate that educational opportunities for high ability Black students were quite favorable for the 1972 high school senior group. At the same time, it must be noted that only a very small percentage of Black students belonged to this group.

Figure 2-12

Status at Each of Five Stages for 1972 High Ability Black and High Ability White High School Seniors: Estimated Percent in Each Category (Actual N = 49 for Black Students and N = 3,252 for White Students)

HIGH SCHOOL PROGRAM	FIRST COLLEGE ENTERED	STATUS IN FALL 1974	MAJOR FIELD: BACHELOR'S DEGREE	EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED B: 45 W: 40	FOUR-YEAR ACADEMIC B: 84 W: 67	ENROLLED IN FOUR-YEAR COLLEGE B: 73 W: 56	HUMANITIES B: 23 W: 5	PROFESSIONAL B: 46 W: 46
ACADEMIC: SCIENCE B: 32 W: 28	TWO-YEAR ACADEMIC B: 12 W: 18	NOT ENROLLED IN FOUR-YEAR COLLEGE B: 27 W: 44	NON-HUMANITIES B: 45 W: 46	MANAGER/PROPRIETOR B: 27 W: 20
ACADEMIC: HUMANITIES AND SOCIAL STUDIES B: 3 W: 13	DID NOT ENTER COLLEGE B: 4 W: 16		UNCLASSIFIED OR MISSING DATA B: 0 W: 2	ALL OTHER B: 27 W: 33
ALL OTHER PROGRAMS B: 20 W: 20			NO DEGREE B: 32 W: 48	

Among high ability Black students who earned a bachelor's degree, about one-third (34%) chose a humanities major rather than a nonhumanities major. For White students, about one-tenth (1.0%) chose a humanities major. Although the exact size of the difference would be expected to vary considerably from one Black student sample to another, these results indicate that the humanities fields tended to be relatively attractive to high ability Black students in the 1972 cohort.

Results: Postbaccalaureate Graduate and Professional School Students

Because American society places a heavy responsibility on graduate and professional schools for preparing individuals for many critically important occupations, information concerning the educational careers of students who attend these schools deserves serious consideration by educators. In defining both the graduate school and professional school groups, only those students who had earned a bachelor's degree and who were enrolled as full-time students at sometime during the period 1975 through 1979 in a graduate or professional school were included in those groups. The limitation to students with bachelor's degrees was intended to minimize the risk of including students who were enrolled in programs that would not meet a strict definition of graduate or professional school work.

In searching the data file for full-time enrollment in graduate or professional school, the years 1975 through 1979 were searched in reverse chronological order. If a student reported that he or she was classified by the school as a full-time graduate or professional student in a given year, data for that year were used in determining major field. If the student was not enrolled in November 1978 through October 1979, the search was repeated for each preceding year. Students who earned bachelor's degrees but who were not enrolled in postbaccalaureate studies in any of the five years were classified as "Did Not Attend School."

In classifying students as graduate or professional, main reliance was placed on a precoded question that asked the student to designate his or her major field within one of 14 areas. It was decided that "Professional Program (medicine, dentistry, law, theology, etc.)," "Health Sciences (nursing, lab technician, occupational therapy, etc.)," and "Business (accounting, marketing, personnel management, etc.)" should be included in the professional school classifications and that the other 11 choices should be included as graduate fields. Respondents were also given the option of responding "Other" and specifying the particular field in which they were majoring. Manually coded data for these free responses were available in the data file, and were used to classify students who chose to give a free response to the question.

As defined in this study, the actual number of graduate students in the sample was 503 and the number of professional school students was 529. Graduate students constituted 3.0 percent of the weighted sample and professional school students also constituted 3.0 percent.

Figures 2-1, 2-13, and 2-14 and Tables 2-1 and 2-2 provide the basis for the following table, prepared to aid in comparing graduate students, professional school students, and all students attaining a bachelor's degree.

Figure 2-13

Pathways for 1972 High School Seniors Who Attended Postbaccalaureate Graduate School: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 503)

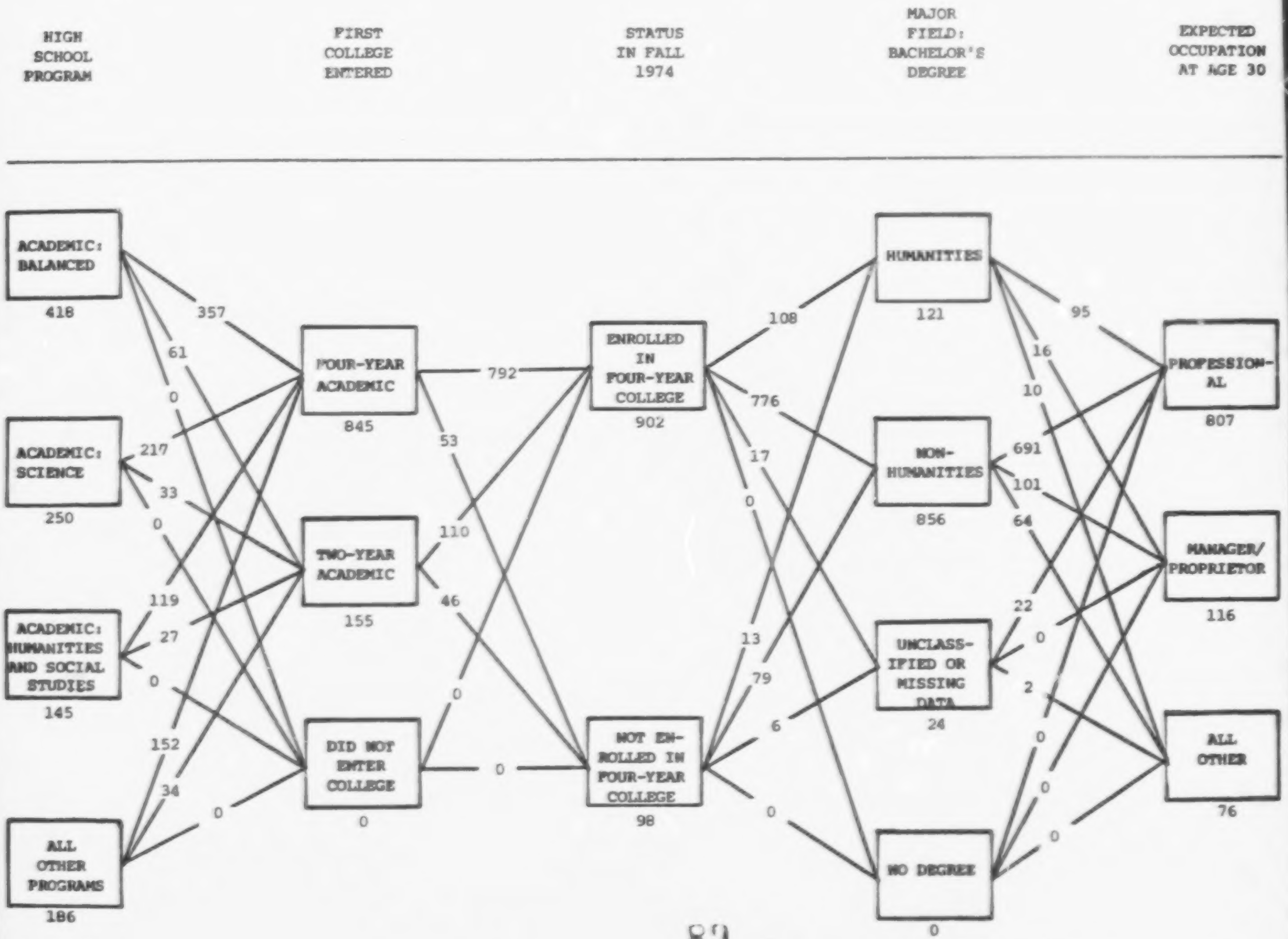
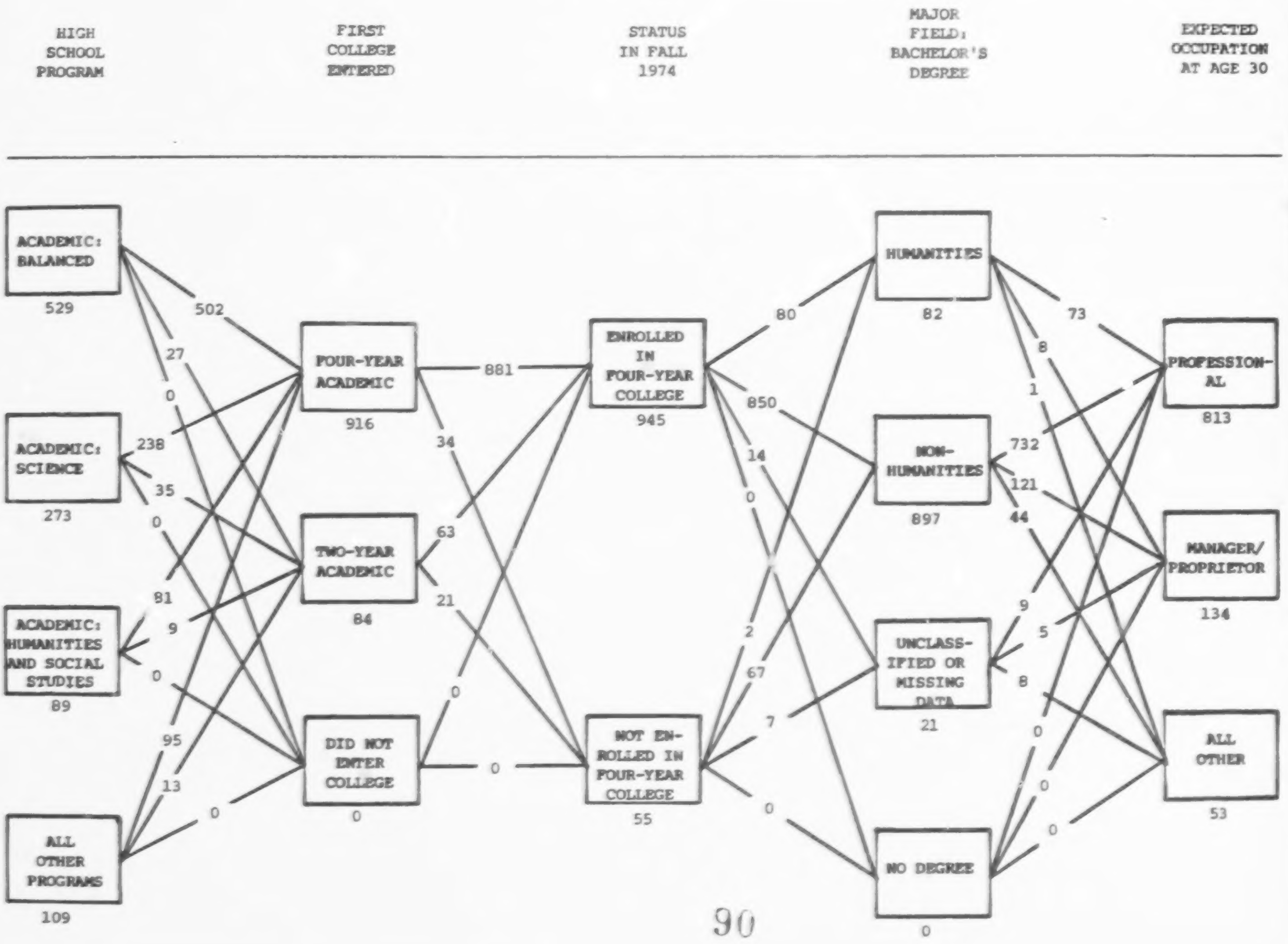

HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
418
ACADEMIC: SCIENCE
250
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
145
ALL OTHER PROGRAMS
186
357
61
0
217
33
0
119
27
0
152
34
0
FOUR-YEAR ACADEMIC
845
TWO-YEAR ACADEMIC
155
DID NOT ENTER COLLEGE
0
792
53
110
46
0
0
ENROLLED IN FOUR-YEAR COLLEGE
902
NOT ENROLLED IN FOUR-YEAR COLLEGE
98
108
776
17
0
13
79
6
0
HUMANITIES
121
NON-HUMANITIES
856
UNCLASSIFIED OR MISSING DATA
24
NO DEGREE
0
95
16
10
691
101
64
22
0
2
0
0
0
PROFESSIONAL
807
MANAGER/PROPRIETOR
116
ALL OTHER
76

Figure 2-14

Pathways for 1972 High School Seniors Who Attended Postbaccalaureate Professional School: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 529)


HIGH SCHOOL PROGRAM
FIRST COLLEGE ENTERED
STATUS IN FALL 1974
MAJOR FIELD: BACHELOR'S DEGREE
EXPECTED OCCUPATION AT AGE 30
ACADEMIC: BALANCED
529
ACADEMIC: SCIENCE
273
ACADEMIC: HUMANITIES AND SOCIAL STUDIES
89
ALL OTHER PROGRAMS
109
502
27
0
238
35
0
81
9
0
95
13
0
FOUR-YEAR ACADEMIC
916
TWO-YEAR ACADEMIC
84
DID NOT ENTER COLLEGE
0
881
34
63
21
0
0
ENROLLED IN FOUR-YEAR COLLEGE
945
NOT ENROLLED IN FOUR-YEAR COLLEGE
55
80
850
14
0
2
67
7
0
HUMANITIES
82
NON-HUMANITIES
897
UNCLASSIFIED OR MISSING DATA
21
NO DEGREE
0
73
8
1
732
121
44
9
5
8
0
0
0
PROFESSIONAL
813
MANAGER/PROPRIETOR
134
ALL OTHER
53

	Percentage of Group Who Attained Each Status		
Status	Graduate	Professional	All Bachelor's
Took an "Academic: Balanced" program in high school	42	53	41
First entered a four-year college	84	92	84
First entered a two-year college	16	8	16
Enrolled in a four-year college in Fall 1974	90	94	88
Undergraduate major in humanities rather than nonhumanities	12	8	7
Expected to be a professional at age 30	81	81	61
Expected to be a manager or proprietor at age 30	12	13	21

When graduate students are compared with all students who earned a bachelor's degree, the percentages describing the earlier stages of the educational career are remarkably similar, although graduate students are slightly more likely than the bachelor's group to have been enrolled in a four-year college in the fall of 1974 (90% vs. 88%). These results may be considered somewhat surprising if it is assumed that graduate work is more intellectually demanding than undergraduate work.

Major field choice shows that 12 percent of graduate students majored in a humanities field as compared with 7 percent for bachelor's recipients generally. A substantial difference also appears in expected occupation at age 30. Some 81 percent of graduate students expect to be in professional work and only 12 percent expect to be managers or proprietors. For the bachelor's group, the corresponding percentages are 61 for professional work and 21 for manager or proprietor.

When graduate and professional school students are compared with each other, professional school students are noticeably more likely to have taken an "Academic: Balanced" program in high school (53% vs. 42%), more likely to have first entered a four-year college (92% vs. 84%), and more likely to have been enrolled in a four-year college in the fall of 1974 (94% vs. 90%). It is possible that these differences reflect a greater awareness of competition for admission to professional schools by prospective applicants.

Graduate students were more likely than professional school students to have majored in one of the humanities than professional school students (12% vs. 7%). With respect to expected occupation at age 30, the two groups were surprisingly similar, at least for the system of classification of occupations used in this study. It is possible that the relatively broad definition of "professional" may have tended to obscure differences between the groups.

Results presented in Figures 2-13 and 2-14 and in Table 2-1 make it possible to describe the composition of the same three groups with respect to program of studies in high school. The following table summarizes information on this point.

	Percentage of Group Who Took Each Program		
High School Program	Graduate	Professional	All Bachelor's
Academic: Balanced	42	53	41
Academic: Science	25	27	28
Academic: Humanities and Social Studies	14	9	12
All Other Programs	19	11	18
Total	100	100	99

From the foregoing table it can be calculated that 80% of professional school students, 67% of graduate students, and 69% of bachelor's recipients had two years or more of both science and mathematics during the last three years of high school. The corresponding figures for two years or more of both foreign languages and social studies are 62% for professional school students, 56% for graduate students and 53% for bachelor's recipients.

Table 2-11 provides information on the relation between high school program and baccalaureate major field for the two groups. Results on the percentage of students classified as humanities rather than nonhumanities majors for graduate and professional students and for all bachelor's degree recipients (from Table 2-1) are as follows:

	Percentage of Humanities Majors		
High School Program	Graduate	Professional	All Bachelor's
Academic: Balanced	14	8	8
Academic: Science	7	8	6
Academic: Humanities and Social Studies	24	16	13
All Other Programs	7	7	5
All High School Programs	12	8	7

For all three groups, the type of high school program is reflected in baccalaureate major field. For students who entered graduate school, the relationship is particularly striking. For this group, 24 percent of the students in the "Academic: Humanities and Social Studies" program had a baccalaureate major in the humanities, while only 7 percent in the "Academic: Science" program majored in humanities.

Table 2-11

Estimated Number Per 1,000 Graduate Students and Per 1,000 Professional School Students Classified by High School Program and by Baccalaureate Major Field

High School Program	Group	Major Field of Bachelor's Degree: Humanities	Major Field of Bachelor's Degree: Non-Humanities	Major Field of Bachelor's Degree: Not Classified	No Bachelor's Degree	Total
Academic: Balanced	Graduate	59	351	8	0	418
	Professional	39	473	17	0	529
Academic: Science	Graduate	16	229	6	0	250
	Professional	21	251	1	0	273
Academic: Humanities and Social Studies	Graduate	34	105	6	0	145
	Professional	14	74	1	0	89
All Other Studies	Graduate	12	170	4	0	186
	Professional	8	99	1	0	109
Total	Graduate	121	856	24	0	1,000
	Professional	82	897	21	0	1,000

Table 2-12 describes the relationship between whether the first college entered is four-year or two-year and major field of the bachelor's degree for graduate and professional students. The relatively small number of students in the two-year college group whose baccalaureate major could be classified as humanities or nonhumanities (79 for graduate and 45 for professional) is too small to justify discussing the percentage of humanities majors. It is possible, however, to calculate the percentage of students in the graduate and professional groups, and to compare those results with corresponding figures for all high school seniors and for all bachelor's recipients cited in the discussion of Table 2-2. The results may be summarized as follows:

Group	Percentage of Group Who First Entered a Four-Year College
College Entrants	62
Bachelor's Recipients	84
Graduate Students	84
Professional Students	92

These results make it clear that for professional school entrants, the percentage who first entered a four-year college is noticeably higher than for bachelor's recipients generally. For graduate students, the percentage first entering four-year colleges is the same as for all bachelor's recipients.

Table 2-12

Estimated Number Per 1,000 Graduate Students and Per 1,000 Professional School Students Classified by Type of College First Entered and by Baccalaureate Major Field

Type of College	Group	Major Field of Bachelor's Degree: Humanities	Non-Humanities	Not Classified	No Bachelor's Degree	Total
Four-Year Academic	Graduate	102	728	15	0	845
	Professional	79	820	17	0	916
Two-Year Academic	Graduate	19	128	9	0	155
	Professional	4	77	4	0	84
Did Not Enter College	Graduate	0	0	0	0	0
	Professional	0	0	0	0	0
Total	Graduate	121	856	24	0	1,000
	Professional	82	897	21	0	1,000

Summary of Results: Defined Subgroups

A useful overview of the relative academic progress of the various subgroups can be obtained by comparing the subgroups on their status on four key variables: (1) high school program; (2) entrance to college, (3) attainment of bachelor's degree, and (4) choice of a humanities major. Results for eleven selected subgroups and for the high school senior sample are as follows:

	Percentage of Group Who:			
Group	Took an "Academic: Balanced" H.S. Program	Entered College	Earned a Bachelor's Degree	Majored in Humanities
Male	20	61	27	7
Female	18	56	24	9
High SES	31	85	49	8
Low SES	9	37	10	8
White	20	59	27	8
Black	12	54	18	9
Hispanic	14	53	11	7
High Ability	40	85	52	9
Bachelor's Recipients	41	100	100	7
Graduate Students	42	100	100	12
Professional Students	53	100	100	8
All High School Seniors	19	58	25	7

Not surprisingly, the various subgroups studied differ substantially from each other on each of the four variables for which results are summarized. Among the many comparisons that can be made, five seem to be worthy of special comment.

1. The similarity of results for male and female students indicate that the greater tendency for men to pursue higher education had been greatly diminished by the 1970's.
2. Black students were almost as likely as White students to enroll in a four-year college as their first college attended (35% vs. 38%). However, they were less likely than White students to take an "Academic: Balanced" high school program (12% vs. 20%) and were less likely to attain a bachelor's degree (18% vs. 27%).
3. Students in the High Ability groups, those with high socioeconomic status, and those who entered graduate or professional school were appreciably more likely than the other groups to take an "Academic: Balanced" high school program and to enter college than the other groups. Low SES students and minority group members were less likely than the other groups to take an "Academic: Balanced" program and to enter college.
4. For graduate and professional school students as defined in this study, professional school students were noticeably more likely (53%) than graduate students (42%) and bachelor's recipients generally (41%) to have taken an "Academic: Balanced" program in high school. Graduate students were noticeably more likely (12%) than professional school students (8%) and bachelor's recipients (7%) to major in humanities rather than in nonhumanities fields.

5. Except for the graduate student group, the percentage of students who chose a humanities rather than a nonhumanities field as their major field for the bachelor's degree ranged only from 7 percent to 9 percent in the eleven groups included in the summary. This result suggests that, although the particular humanities fields chosen may vary from one group to another, the humanities as a whole appeal to highly diverse groups.

CHAPTER 3

HUMANITIES MAJORS: STABILITY AND CHANGE DURING THE FOUR COLLEGE YEARS

As a cohort of college freshman goes through the four years of college, the composition of the group of students who intend to major in or who are majoring in the humanities is continually changing. The analysis reported in this chapter describes the shifts into and out of the humanities group at four critical points during the college years: at the beginning of the freshman, sophomore, and junior years and at the time of receiving the bachelor's degree. The results provide hitherto unavailable information on the pervasiveness of major field changes at different stages of college careers and on the extent to which the proportion of students majoring in the humanities tends to increase or decrease over the four years of college. Also reported, in a subsequent section, is an examination of the personal characteristics of students who persisted in either the humanities or the nonhumanities and the students transferring between the groups.

A major consideration in the interpretation of these analyses is the fact that the sample includes only students who met two specifications:

1. They must have reported that they earned a bachelor's degree by the fall of 1976 (four years beyond high school), and
2. They must have reported that they were enrolled in college in October 1972, October 1973, and October 1974.

In effect, these restrictions identify a subsample of graduates who approximate the traditional pattern of college attendance, in which students entered college directly from high school and continued through the four years of college to graduation. The definition of the study sample in this way makes it possible to use the time of each survey and the student's academic status interchangeably for purposes of discussion. Thus, it seems plausible that nearly all members of the group were beginning their junior year in October 1974. This definition also simplifies the pathways analysis by making it unnecessary to have an additional category for students who were not enrolled at one of the stages.[1]

The pathways analysis of major field shifts uses three categories: (a) humanities, (b) nonhumanities and (c) not classifiable. The definition of the categories is consistent with that described in the section, "Major Field: Bachelor's Degree" in Chapter 2.

Results

Pathways Analysis

The results of the pathways analysis are shown in Figure 3-1. Considering first shifts into and out of the humanities group, it is clear that the great majority of students remain in the same category from one stage to the next. Thus, among 1,000 sample members, 63 were classified as humanities majors at the beginning of their freshman year and—of these—52 were also classified as humanities majors at the beginning of their sophomore year. Thus, 85 percent

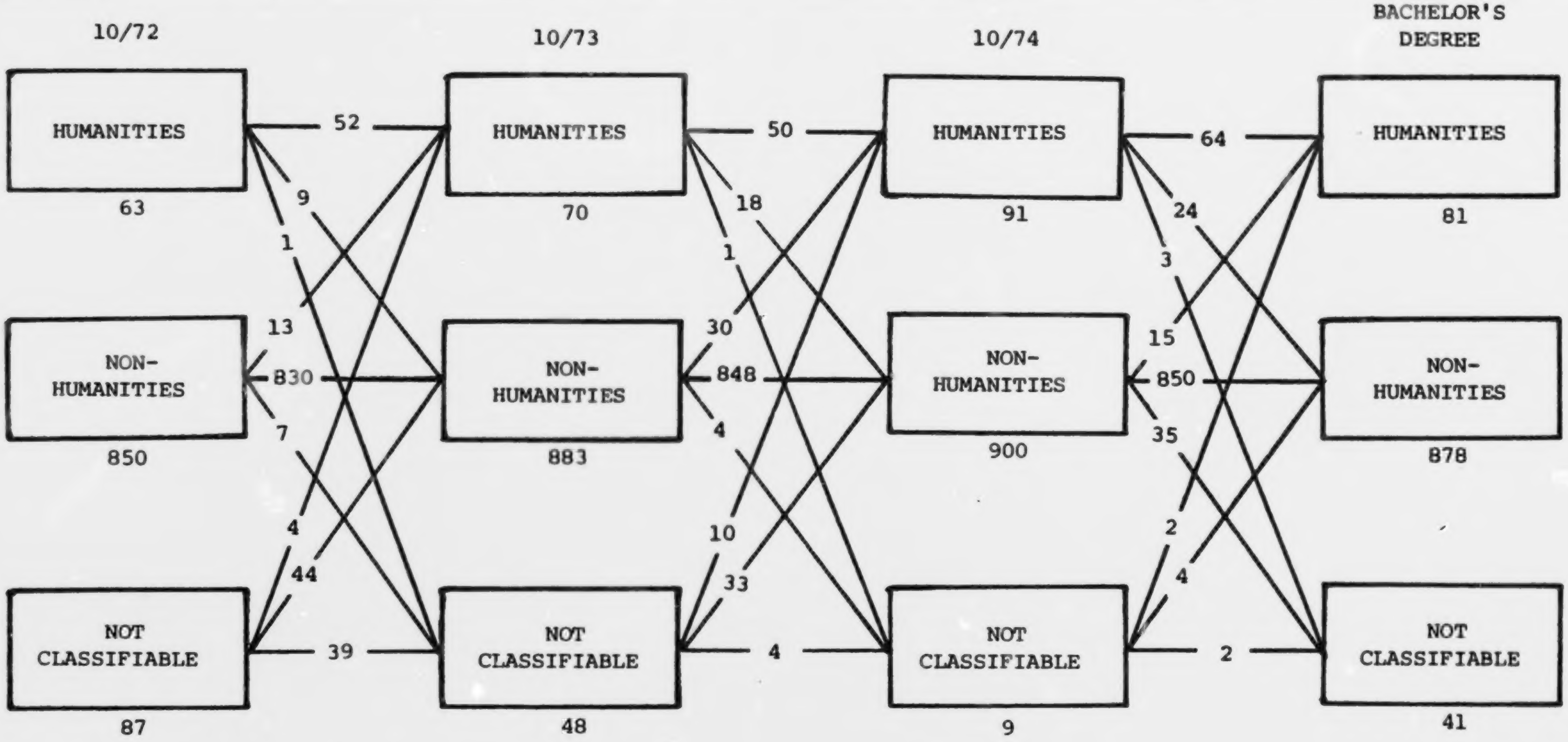
---

[1] The definition of the study sample precludes the assertion that the sample is a national probability sample of all 1972 high school seniors. It seems very likely that the sample would be somewhat superior to the total group of students who earned bachelor's degrees in characteristics that have a positive correlation with college going. What the analysis does provide is a reasonably accurate description of the choices made by 1972 high school seniors who earned a bachelor's degree in the four academic years following their high school graduation.

In this analysis, as in other parts of this study concerned with career pathways, only sample members who participated in all four of the follow-up surveys and who had data on the Student Record Information Form were included. The same weights were used for this study as for the main pathways analysis.

Figure 3-1

Shifts in Major Field for 1972 High School Seniors Who Were Enrolled in College in October 1972, October 1973, and October 1974 and Who Earned a Bachelor's Degree by October 1976: Estimated Number in Each Category Per 1,000 Sample Members (Actual N = 2,481)


10/72
10/73
10/74
BACHELOR'S DEGREE
HUMANITIES
63
NON-HUMANITIES
850
NOT CLASSIFIABLE
87
52
9
1
13
830
7
4
44
39
HUMANITIES
70
NON-HUMANITIES
883
NOT CLASSIFIABLE
48
50
18
1
30
848
4
10
33
4
HUMANITIES
91
NON-HUMANITIES
900
NOT CLASSIFIABLE
9
64
24
3
15
850
35
2
4
2
HUMANITIES
81
NON-HUMANITIES
878
NOT CLASSIFIABLE
41

(52 of 63) of the freshmen continued as humanities majors or prospective majors as sophomores. Of 70 humanities majors at the beginning of their sophomore year, 71 percent (50 of 70) were classified as humanities majors in the fall of their junior year. Of students classified as humanities majors at the beginning of their junior year, 70 percent (64 of 91) were classified as humanities majors when they received their bachelor's degree.

Although this analysis does not take account of changes in field of study within the humanities area, it seems safe to assume that many students shift from one humanities field to another during the four years. These results make it clear that there is substantial shifting of students into and out of the humanities group during the four years of college as they gain more experience with the possibilities and the demands of those fields of specialization and as their attitudes and goals change during these four years as the results of conditions and events both in college and in their life outside of college. Figure 3-1 makes it possible, also, to consider gains and losses of perspective or actual majors. Per 1,000 sample members, humanities gained 13 from nonhumanities and lost 9 to that group from the freshman to the sophomore year. This gain, although small relative to the total group, suggests that the experiences of the freshman year work in favor of the humanities. Humanities gained 4 from and lost 1 to the "not classifiable" group. This difference probably arose because more of the not classifiable group had made a choice. (The nonhumanities group gained 44 from and lost 7 to the not classifiable group.)

From the sophomore to the junior years, the pattern of gains and losses was similar but differences were larger. Humanities gained 30 from and lost 18 to the nonhumanities group, and gained 10 from and lost 1 to the not classifiable group. Humanities had 91 majors per 1,000 at the beginning of the junior year as compared to 70 at the beginning of the sophomore year and 63 at the beginning of the freshman year.

The shifts for major field at the beginning of the junior year to major field for the bachelor's degree showed a different pattern. Of 91 members of the humanities group as juniors, 24 shifted to the nonhumanities group, a loss that is only partially offset by the 15 students who shifted from nonhumanities to humanities. With respect to the not classifiable group, 3 students per 1,000 shifted to it from the humanities group while 2 shifted from it to the humanities group. As discussed earlier, determination of field of study was somewhat difficult for students at the time of earning the bachelor's degree. The fact that the not classifiable group has 41 members per 1,000 for the bachelor's degree status as compared to 9 per 1,000 for the beginning of the junior year may be attributable to this fact.

The results for the nonhumanities group shown in Figure 3-1, if taken at face value, suggest a greater stability of choice for this group than for the humanities group. For example, of 850 students choosing a nonhumanities field as entering freshmen, 830 (96 percent) also chose a nonhumanities field as sophomores. In fact, this high percentage of agreement was mainly attributable to two factors. First, because so large a percentage of the sample belonged to the nonhumanities group at both times, it would be expected by chance alone that 751 students per 1,000 would belong to both groups. Second, the nonhumanities group is very heterogeneous. Thus, many significant changes in major field would have no effect on the number of agreements, since only shifts into or out of the humanities group and the not classified group affect this figure. On the whole, it appears that the results for the nonhumanities group provide little or no information beyond that provided by the results for the humanities group.

For the not classifiable group, the number per 1,000 is 87 at the beginning of the freshman year. This figure dropped to 48 at the beginning of the sophomore year, and was only 9 per 1,000 at the beginning of the junior year. The increase to 41 at the time of bachelor's degree is probably attributable, as noted earlier, to the fact that the identification of major field was more difficult for this variable than for the other three.

A supplementary analysis was made comparing major field at the beginning of the freshman year with major field at the time of the bachelor's degree. It turned out that of the 63 students per 1,000 who reported a preference for humanities as freshmen, 37, or 59 percent, reported a humanities major at the time of their bachelor's degree. Viewed from another perspective, 81 students who reported a humanities major at the time of their degree, 37, or 46 percent, were headed towards a humanities degree as freshmen. Although some students may have shifted out of the humanities and then returned during their four years of college, the fact that almost three-fifths of the freshmen who were prospective humanities majors earned their degrees in a humanities field make it clear that, for many students, initial choice reflects a serious commitment.

One other result from the examination of freshman year vs. bachelor's degree majors deserves mention. Although 87 of the freshmen belonged to the not classifiable group, and 41 were not classifiable at the time of their bachelor's degree, only 6 students were unclassifiable at both stages. (By chance, if the two variables were independent, 4 agreements would be expected.)

Although the results of this analysis provide a reasonably dependable description of the extent of changes into and out of the humanities group for the years 1972 through 1976 for high school seniors, they do not provide a basis for judging the extent to which prevailing attitudes, and conditions within colleges and in the nation at that time affect the results. Similar studies for a later period should throw a great deal of light on this question.

Characteristics of Students Changing Majors

In this section we describe the personal characteristics of four groups of students:

1. the students beginning in the humanities and receiving BS or BA degrees in the humanities (the humanities persisters),
2. the students starting in the humanities who received a BS or BA in a nonhumanities field (the leavers),
3. the students starting in a nonhumanities field who received a BS or BA in the humanities (the incomers), and
4. the students starting in a nonhumanities field who received a BS or BA in a nonhumanities field (the nonhumanities persisters)

For two reasons, we changed the definition of the samples from the definitions in the previous section of this chapter. First, we focussed on the student's major as of the sophomore year in the belief that choice of major in the freshman year may have been exploratory or capricious for many students. Second, we extended the "deadline" for receipt of the bachelor's degree until 1979 in order to enlarge the samples under consideration. Under this definition the numbers in each of the four groups were as follows:

	Actual N	Population estimate[2]
Humanities persisters	137	22,365
Humanities leavers	88	14,396
Humanities incomers	95	17,104
Nonhumanities persisters	2,559	453,562

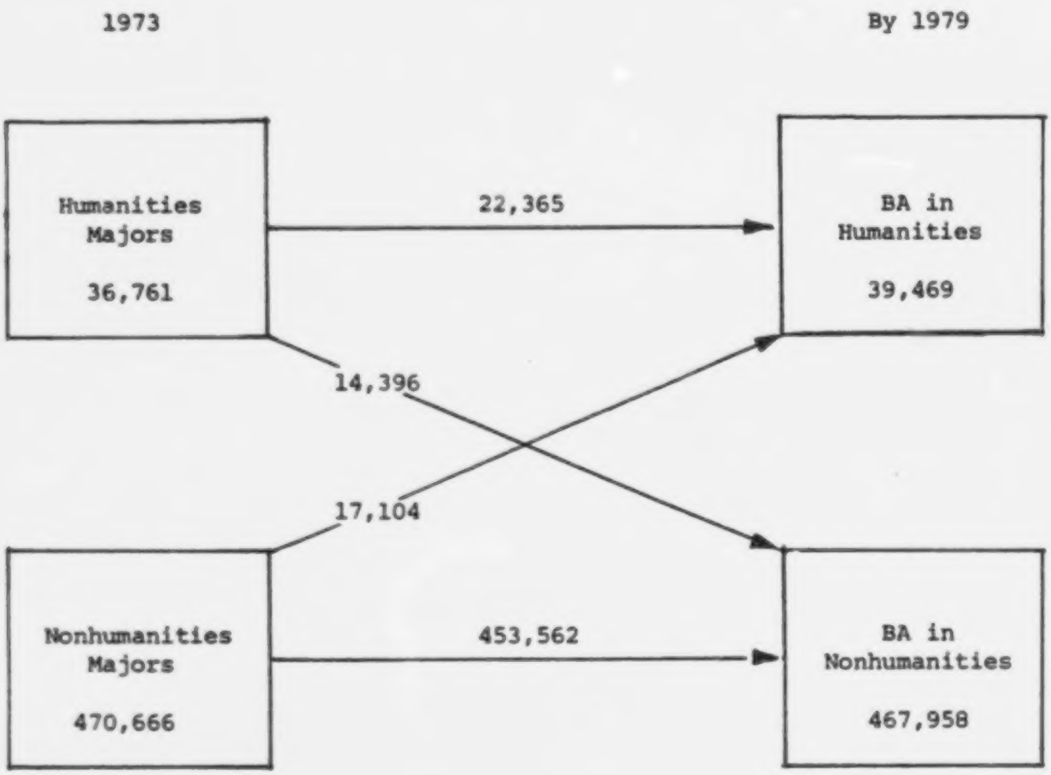
As shown in Figure 3-2, of the approximately 37,000 college undergraduates who were known to be enrolled in 1973 as humanities majors in their sophomore year, 14,000 or 39% left the humanities and, by 1979, received a BS or BA degree in another field. At the same time, of the 471,000 students who were majors in the nonhumanities, 17,000 or 4% transferred to the humanities and received degrees in the humanities by 1979. Thus, there was a net gain of approximately 3,000 during the last three years of college in the number receiving humanities degrees in comparison with the number starting. Conversely, the number starting in the nonhumanities and subsequently receiving degrees in the nonhumanities shrunk by 3,000.

---

[2] The focus in this section is on that subsample of the total NLS sample who began college immediately after high school graduation and had received a bachelor's degree by 1979. Inclusion of sample subjects in the analysis sample required that data from the fourth follow-up be available and that the subjects persisted until receipt of the bachelor's degree. Thus, the number of humanities majors differs from the totals reported elsewhere in this report that may include college dropouts.

Figure 3-2

Flow of Students from Sophomore Year to Baccalaureate


1973
By 1979
Humanities Majors
36,761
22,365
BA in Humanities
39,469
14,396
17,104
Nonhumanities Majors
470,666
453,562
BA in Nonhumanities
467,958

Students Leaving Humanities

What are the characteristics of students who began in the humanities but later switched to a nonhumanities field and received a BS or BA degree in that field (the leavers)? In addressing this question, two groups were compared: those who were humanities majors as of the sophomore year and by 1979 received a bachelor's degree in the humanities (the persisters) and a second group who began in the humanities but later received bachelors degrees in nonhumanities fields (the leavers).

The persisters group included 137 sample members and the leavers group included only 88 sample members. Studies of subgroups of these samples (for example, men and women, ethnic groups) did not seem warranted in view of these small sample sizes. Moreover, it was decided not to present statistical results in detail, but to limit the report to general observations.

Small differences were found suggesting that persisters were somewhat more able and that they placed somewhat less importance on financial returns and somewhat more importance on being of service to society than did leavers. These findings seem reasonable.

In most comparisons, persisters tended to be similar to leavers. Thus, there are no appreciable differences between the two groups for the following measures:

Overall grades in high school (but the persisters had slightly higher grades)

Time spent on homework in high school

Participation in debating and music

Degree of influence of teachers on future plans

The importance of "having lots of money" (the persisters placed slightly less importance on this)

The importance of "working to correct social and economic inequalities" (the persisters placed slightly more importance on this)

Father's occupational level

Mother's occupational level

Highest level of education planned (persisters reported slightly higher levels than leavers)

Father's education

Mother's education

Mother's educational aspiration for student

Number of study aids available in student's home

Whether student's school should have placed more emphasis on academic matters

Vocabulary test score (persisters had slightly higher scores than leavers)

Reading test score (persisters had slightly higher scores)

Mathematics test score (persisters had slightly higher scores)

In part, the similarity in results for the persisters and leavers may arise because the humanities are by no means strictly homogeneous as viewed by prospective majors. Students who major in history may tend to have different backgrounds, abilities, and interests from students in modern languages, for example. Some students with a strong quantitative bent may find the humanities attractive along with students who detest any subject that smatters of numbers and statistics. Similarly, students strongly oriented toward rational or empirical methods may use these approaches in a humanities field, and students who lean strongly toward affective or esthetic approaches may also find a humanities major attractive.

Furthermore, the search for generalizations is confounded by the very heterogeneous nature of the nonhumanities fields into which humanities majors may transfer. These fields are as diverse as engineering, education, business administration, and studio art. Ideally, one would want to contrast students who transfer from one humanities major, say, history, into one of the nonhumanities, such as education. But this would require a data set far larger than that provided by the 1972 National Longitudinal Study even though that survey started with 22,000 high school seniors.

Students Joining the Humanities

The second comparisons were of the humanities persisters and students who, as of the sophomore year, were enrolled in a nonhumanities major but by 1979 had received a bachelor's degree in the humanities. For lack of a better term we will refer to the latter group as "incomers." We expected to find less difference between these two groups than for other comparisons, on the grounds that the college curriculum is a sorting device that encourages the coming together of students with similar characteristics and interests, thus increasing the homogeneity of the final groups. The results supported this expectation; the comparisons showed less difference than the comparisons of other groups. But there was some interesting exceptions. The incomers had lower high school grades and lower test scores, which suggests the possibility that they may have avoided the humanities initially out of fear of not doing well or, alternatively, that they may have transferred to the humanities after not doing well in nonhumanities majors. As shown in Tables 3-1 and 3-2, however, their grades and Vocabulary Test scores were no lower than those of nonhumanities persisters, suggesting they may have performed as well as the nonhumanities students.

It is of interest that on the "importance of money" scale (see Table 3-3) the differences between means, although small, are in the direction of the homogeneity hypothesis. The humanities leavers placed the same importance on money as the nonhumanities persisters while the humanities incomers had mean scores more like the humanities persisters.

On the other hand, the students who began in the nonhumanities, including those who eventually transferred to the humanities, were more likely to agree strongly that their high schools "should have placed more emphasis on basic academic subjects (math, science, English, etc.)" (see Table 3-4). This suggests that the absence of this emphasis influenced some students to choose a nonhumanities major on entering college. Unfortunately, the data did not exist to pursue the "increased homogeneity" hypothesis further.

Table 3-1

Mean and Standard Deviation (SD) of High School Grades by Major Categories of Undergraduate Majors

	Mean	SD
Humanities persisters	6.9	1.1
Humanities leavers	6.7	1.4
Humanities incomers	6.5	1.2
Nonhumanities persisters	6.5	1.2

Table 3-2

Mean and Standard Deviation (SD) of Vocabulary Test Scores of Major Categories of Undergraduate Majors

	Mean	SD
Humanities persisters	11.2	3.4
Humanities leavers	10.2	3.4
Humanities incomers	10.0	3.7
Nonhumanities persisters	9.0	3.6

Table 3-3

Mean and Standard Deviation (SD) of Importance of Money by Major Categories of Undergraduate Majors

(1 = not important; 2 = somewhat important; 3 = very important)

	Mean	SD
Humanities persisters	1.7	.6
Humanities leavers	1.9	.6
Humanities incomers	1.8	.7
Nonhumanities persisters	1.9	.6

Table 3-4

Mean and Standard Deviation (SD) of Attitude Towards More Academic Emphasis in High School Courses

(1 = agree strongly; 4 = disagree strongly)

	Mean	SD
Humanities persisters	2.8	.8
Humanities leavers	2.7	.9
Humanities incomers	2.5	.9
Nonhumanities persisters	2.5	.8

Humanities Persisters Vs. Nonhumanities Persisters

The differences between these subgroups were small but in a consistent direction. The humanities persisters had higher grades in high school, especially for the women; placed less emphasis on money; had higher educational aspirations; were more satisfied with the academic emphasis of their high schools (possibly because their high schools actually emphasized the academic basics more); and had substantially higher vocabulary and reading scores.

Discussion

In an attempt to offer some general hypotheses about switching in and out of the humanities we reviewed the results of the comparisons described above, but with limited success. It is not uniformily the case, for example, that switching increases the homogeneity of the humanities majors and the nonhumanities majors. This is the case for certain variables, attitude towards money being one. As shown in Table 3-3, the humanities leavers reported an attitude more like the nonhumanities majors than the humanities persisters and the incoming group were more like the humanities majors than the nonhumanities majors. Other variables displayed the same trends to a lesser extent, the vocabulary score being an example (see Table 3-2). Those leaving the humanities had lower scores than those remaining. But this was not the case for the mathematics scores. The humanities majors had the highest mean (19.4) and those leaving had lower scores (18.1), more like the nonhumanities majors (18.6), but those leaving the nonhumanities majors had lower scores (18.1) than the nonhumanities majors in general.

The main reason for the lack of sizeable differences between the various comparison groups is, we believe, the heterogeneity of humanities majors and the even greater heterogeneity of nonhumanities majors which was described earlier. Also, it is likely that attitude and background measures not present in the NLS and HS&B data files would have sharpened the discriminations.

In view of the modest differences between humanities persisters and humanities leavers, we must be cautious in drawing implications from the data. With this warning we suggest that students with relatively low verbal skills and who value monetary returns more than being of social service may not find majoring in the humanities as congenial as majoring in the nonhumanities.

Perhaps the more important implication of this work, which we offer without qualification, is that empirical investigation in this area requires data bases large enough to examine the various majors within the humanities separately.

The most important implication of these analyses, however, is that there is no evidence for this cohort of students that large numbers of students deserted the humanities during their undergraduate years.

CHAPTER 4

COMPARISON OF COLLEGE HUMANITIES MAJORS AND COLLEGE NONHUMANITIES MAJORS

What were the characteristics of high school seniors who later enrolled in a college humanities major in comparison to those who later enrolled in a nonhumanities major? As in other sections of this report "later" is defined as the fall of the sophomore year in college in order that the choice might reflect a year of actual exposure to college and that the definition not be subject to the charge that many first-year college students either do not make a choice at first or do so on the basis of fleeting and romantic notions about what majoring in the humanities means.

We first will compare the two groups of majors as they were in 1973 and then as they were in 1981. In Chapter 5 we will focus in greater detail on the way the humanities majors changed from 1973 to 1981.

In the first comparisons, the humanities majors and the balance of the college-attending subpopulation were compared with respect to 26 selected measures common to both the NLS and the HS&B file, as shown in Table 4-1. This list includes variables that other research based on the NLS or HS&B file has shown to be important in career development research (see, for example, Hilton, 1982). It does not include certain variables that––on theoretical grounds––we would have liked to include, especially home background variables such as parents' attitude towards the humanities, so the measures that did emerge as discriminating between humanities and nonhumanities majors should by no means be regarded as exhaustive. In other words, the computer output should be interpreted in the light of the data that were available.

Table 4-1

Mean ($\bar{X}$) and Standard Deviations (SD) of Selected Measures for Humanities and Nonhumanities Majors in 1973

	Major in 1973				
Weighted N	Humanities 55,735		Nonhumanities 1,001,676		Standard Regression Weight
Item Number	$\bar{X}$	SD	$\bar{X}$	SD	
High school grades (8 = mostly A's; 1 = below D)	6.57	1.25	6.15	1.29	.02
Time/week spent on homework (1 = 0-5 hrs; 3 = 10+ hrs)	1.66	.70	1.56	.65	.00
Proportion participating in debating, music	.43	.50	.40	.49	.00
Influence of teachers on plans (1 = none; 3 = a great deal)	1.71	.72	1.58	.71	.04*
Importance of money (1 = not important; 3 = very)	1.77	.64	1.94	.62	-.03*
Importance of work on social problems (same as preceding)	2.24	.70	2.10	.69	.02
Proportion with fathers in a profession (1 = professional; 0 = other)	.30	.46	.20	.40	.03
Proportion with mothers in a profession (same as preceding)	.13	.33	.13	.34	-.04*
Educational aspirations (1 = less than high school; 5 = graduate or professional)	4.24	.61	4.01	.71	.04*
Father's education (same as preceding)	3.04	1.37	2.70	1.29	.00
Mother's education (same as preceding)	2.70	1.09	2.48	1.07	.03
Education mother wanted for student (same as preceding)	4.22	.53	4.07	.64	.00
Number of study aids available in home (0 = none; 4 = four)	3.44	.77	3.39	.79	-.02

Table 4-1 (continued)

Mean ($\bar{X}$) and Standard Deviations (SD) of Selected Measures for Humanities and Nonhumanities Majors in 1973

	Major in 1973				
	Humanities		Nonhumanities		
Weighted N	55,735		1,001,676		Standard Regression Weight
Item Number	$\bar{X}$	SD	$\bar{X}$	SD	
School should have had more academic emphasis (1 = agree strongly; 4 = disagree strongly)	2.64	.85	2.49	.86	.02
IRT Vocabulary score (min. = 3.75 and max. = 15.0, as scaled by Item Response Theory)	10.46	3.52	8.18	3.79	.10*
IRT Reading score (min. = -5.0 and max. = 20)	13.98	3.90	11.95	4.39	.04
IRT Mathematics score (min. = -8.34 and max. = 25.0)	17.92	5.68	16.66	6.31	-.06*
Proportion male	.43	.49	.53	.50	-.02
SES (1 = low; 2 = middle; and 3 = high)	2.42	.66	2.26	.68	.00
Proportion attending public school	.86	.35	.89	.31	-.01
Proportion in academic curriculum	.83	.37	.80	.45	.01
Proportion in urban schools	.28	.45	.26	.44	.02
Percentage of teachers with MS or PhD (1 = 0-29; 2 = 30-49 3 = 50-100)	2.20	.80	2.12	.78	.00
Percentage of classmates in academic programs (1 = 0-25; 2 = 26-49; 3 = 50-100)	2.39	.76	2.29	.74	.00
Proportion attending schools offering Advanced Placement	.47	.50	.37	.48	.03*
Socioeconomic status of classmates (1 = low; 3 = high)	2.40	.66	2.28	.66	-.01

*Significant at .05 level

The samples for the comparisons were all NLS or HS&B sample members who were enrolled as sophomores in two- or four-year colleges in 1973 and in 1981. Thus, the samples do not include college students who may have dropped out temporarily or permanently during their freshman year, but they do include students who dropped out after their sophomore year.

As shown in Table 4-1, in 1973 relatively few measures discriminated between the two groups in a forceful way, judging from the standard regression weights (an index of how much each measure contributed to the discrimination). In contrast to the nonhumanities majors, the humanities majors:

- had higher high school grades;
- reported their teachers had more influence on their plans;
- attached less importance to "making lots of money";
- attached more importance to working to alleviate social problems;
- were more likely to have fathers who were professionals;
- had higher academic aspirations;
- had more educated fathers and mothers;
- had mothers with higher educational aspirations for them;
- had clearly higher vocabulary and reading scores and slightly higher math scores;
- were less likely to be male (43% vs. 53%);
- were of higher socioeconomic status; and
- were more likely to have attended a school that offered Advanced Placement programs (45% vs. 38%).

The next question concerned the unique contribution of each of the measures to the prediction of which high school seniors subsequently majored in the humanities. For this purpose each of the measures in Table 4-1 was included in a multiple regression analysis of the data. The relevant output is included in the appendix. In this analysis, the vocabulary score emerged as the single best discriminator between humanities majors and nonhumanities majors. It was followed by (1) their mathematics score (with a negative weight)[1], (2) the students' educational aspirations, (3) level of mother's occupation (with a negative weight), (4) whether their teachers influenced their plans, (5) the importance of money (with a negative weight), and (6) whether they attended a high school offering Advanced Placement. The multiple correlation was .17 which indicates that these measures accounted for only a small share of the variance in selection of college major, even though the multiple correlation was significant statistically.

Why the independent variables did not account for more of the variance is not clear. Three possibilities are, first, that important predictors were not included, primarily because the measures were not available. More measures of interest in and attitudes towards academic subjects encompassed by the humanities would have been desirable. Also, transcript data on past performance in relevant academic courses probably would have been predictive. (The 1980 HS&B data file does include transcript data but the 1972 NLS file does not.) Furthermore, we can hypothesize that the student's experiences during the freshman year of college may be crucial in forming attitudes towards subjects to take in the balance of college and thus their stated preferences as sophomores in regard to major.

---

[1] Technical footnote. The negative weights assigned to the math score and to Level of Mother's Occupation do not necessarily mean that these measures have a negative relationship with majoring in the humanities but instead that, for mathematical reasons, the prediction was made more accurate by giving the measures a negative weight in the prediction equation.

A second possible explanation concerns the heterogeneity of the humanities field and the even greater heterogeneity of the nonhumanities. Choices between more homogeneous disciplines, such as foreign languages majors and physics majors are no doubt more predictable, but such contrasts would require even larger samples than were available for the present study.

Third, it is likely that chance factors play a significant role in choice of major. A supportive professor, an off-hand comment by a peer, or a newspaper article that the student happened to read may have had a major influence, particularly for students in conflict about what major to choose. Hilton reported the same phenomena for students of engineering planning their postgraduate careers (1962).

Differences between Humanities and Nonhumanities Majors in 1981

As shown in Table 4-2, many of the differences between the humanities and nonhumanities majors remained by 1981. In contrast to the nonhumanities majors, the humanities majors still:

- had higher high school grades;
- attached less importance to "making lots of money";
- attached more importance to working to alleviate social problems;
- were more likely to have fathers who were in a profession (31% vs. 22%);
- had higher educational aspirations;
- had substantially more educated parents;
- had mothers who had higher educational aspirations for them;
- were less likely to be male (40% vs. 46%);
- had clearly higher vocabulary, reading, and math scores;
- were of higher socioeconomic status; and

Table 4-2

Mean ($\bar{X}$) and Standard Deviations (SD) of Selected Measures for Humanities and Nonhumanities Majors in 1981

	Major in 1981				
Weighted N	Humanities 40,342		Nonhumanities 1,013,139		Standard Regression Weight
Item Number	$\bar{X}$	SD	$\bar{X}$	SD	
High school grades (8 = mostly A's; 1 = below D)	6.92	1.01	6.43	1.25	.02
Time/week spent on homework (1 = 0-5 hrs; 3 = 10+ hrs)	1.69	.78	1.50	.69	.00
Proportion participating in debating, music	.66	.48	.44	.50	.06*
Influence of teachers on plans (1 = none; 3 = a great deal)	1.97	.69	1.83	.69	.02
Importance of money (1 = not important; 3 = very)	2.01	.66	2.15	.61	-.02
Importance of work on social problems (same as preceding)	1.91	.72	1.77	.67	.02
Proportion with father in a profession (1 = professional; 0 = other)	.31	.46	.22	.41	-.02*
Proportion with mothers in a profession (same as preceding)	.30	.46	.23	.42	-.00
Educational aspirations (1 = less than high school; 5 = graduate or professional)	4.49	.71	4.14	.80	-.03
Father's education (same as preceding)	3.68	1.33	3.04	1.29	-.06*
Mother's education (same as preceding)	3.07	1.15	2.72	1.06	.01
Education mother wanted for student (same as preceding)	4.52	.51	4.16	.76	.06*
Number of study aids available in home (0 = none; 4 = four)	3.23	1.02	3.19	.84	-.03

Table 4-2 (continued)

Mean ($\bar{X}$) and Standard Deviations (SD) of Selected Measures for Humanities and Nonhumanities Majors in 1981

	Major in 1981				
Weighted N	Humanities 40,342		Nonhumanities 1,013,139		Standard Regression Weight
Item Number	$\bar{X}$	SD	$\bar{X}$	SD	
School should have more academic emphasis (1 = agree strongly; 4 = disagree strongly)	2.11	.88	2.09	.85	-.01
IRT Vocabulary score (min. = 3.75 and max. = 15.0, as scaled by Item Response Theory)	10.47	3.47	7.41	3.53	.13*
IRT Reading score (min. = -5.0 and max. = 20)	13.91	3.42	11.24	4.61	.00
IRT Mathematics score (min. = -8.34 and max.= 25.0)	1[illegible].89	4.52	16.01	6.22	-.03
Proportion male	.40	.49	.46	.50	-.02
SES (1 = low; 2 = middle; and 3 = high)	2.48	.64	2.24	.69	-.03
Proportion attending public school	.74	.44	.86	.35	-.03
Proportion in academic curriculum	.87	.34	.64	.48	.03
Proportion in urban schools	.15	.36	.19	.39	-.02
Percentage of teachers with MS or PhD (1 = 0-29; 2 = 30-49 3 = 50-100)	2.57	1.00	2.55	1.04	-.02
Percentage of classmates in academic programs (1 = 0-25; 2 = 26-49; 3 = 50-100)	2.40	.80	2.09	.82	.03
Proportion attending schools offering Advanced Placement	.73	.44	.53	.50	.05*
Socioeconomic status of classmates (1 = low; 3 = high)	2.54	.59	2.24	.65	.02

*Significant at .05 level

- were more likely to have attended a school that offered Advanced Placement courses (73% vs. 53%).

However, by 1981 some new differences between the two groups emerged. The humanities majors:

- reported they devoted more time to home work when high school seniors;
- were more likely to have participated in debating and music (66% vs 44%);
- were less likely to have attended a public school (74% vs. 86%);
- were more likely to have been in the academic curriculum in high school (87% vs. 64%); and
- were more likely to have classmates who were in the academic curriculum and were of high socioeconomic status.

The superiority of the math scores of the humanities majors relative to the nonhumanities majors was particularly accentuated in 1981.

Again the 26 measures on which the two groups were compared were analyzed by multiple regression in order to estimate which of the variables may have made the greater independent contribution to the differences between humanities and nonhumanities majors. The results indicated that, as in 1973, the vocabulary score contributed the most. This score was followed by their mother's educational aspirations for them, their father's education, whether they participated in debating and music, and whether they attended a school offering Advanced Placement courses. The multiple correlation increased slightly, from .17 to .22, which still leaves choice of college major largely unpredictable—at least from the available measures.

In summary, of the results of the 1973 and 1981 multiple regressions, the following are the discriminating variables for each year, in order of decreasing importance (standard score regression weights are shown in parentheses):

1973	1981
1. Vocabulary score (.10)	1. Vocabulary score (.13)
2. Math score (–.06)	
3. Student's educational aspirations (.04)	2. Mother's aspirations for student (.06)
4. Level of mother's occupation (–.04)	3. Father's education (.06) 6. Father's occupation (.02)
5. Teacher's influence (.04)	4. Participation in debating, music (.06)
6. Importance of money (–.03)	
7. School had Advanced Placement (.03)	5. School had Advanced Placement (.05)

In setting up the table above, we placed together certain variables that were either identical in both years or were roughly similar in what they measured. (The student's educational aspirations, for example, is closely related to mother's aspiration for the student.) The table clearly suggests that the measures that distinguished the humanities majors from the nonhumanities majors in 1973 were quite similar to the measures that entered the discrimination in 1981. In fact, given the well-known instability of regression coefficients, it is notable that the predictive variables were as similar as they were in the two years.

In conclusion, these results indicate that in both 1973 and 1981 humanities majors in contrast to nonhumanities majors:

- had higher vocabulary, reading, and math scores;
- attached less importance to monetary rewards;
- attached more importance to performing social service;
- had higher educational aspirations;
- came from families of higher socioeconomic status; and
- were more likely to have attended school that offered Advanced Placement courses.

Between 1973 and 1981 certain differences between the two groups of majors emerged; these are examined in greater detail in Chapter 5.

The multiple regression analyses indicated that which students would major in the humanities could be predicted from the students' characteristics as high school students but the prediction left much to chance. This uncertainty probably results from the absence of critical variables in the data file and heterogeneity of the category of humanities majors and also nonhumanities majors.

Two possible implications of the results are of interest. The first concerns the observation that in both 1973 and 1981 humanities majors were more likely than nonhumanities majors to have attended high schools that offered Advanced Placement programs. In addition, the "Advanced Placement" item made a unique contribution to the multiple regression discrimination. The indication is that participating in an Advanced Placement program increases the probability of selecting a humanities major, perhaps because of the intellectual stimulation of such participation. It would be interesting to know whether the subject matter of the Advance Placement course makes a difference, but the available data did not permit examination of this question.

The second implication is suggested by the frequent emergence of parent's education and aspirations as discriminators between the two groups of majors. Exactly why having more educated parents should increase the probability of selecting a humanities major is difficult to say, but we would hypothesize that students in such homes receive more encouragement (or less discouragement) to select a humanities major and also have more finely developed sensibilities with respect to intellectual and artistic matters. However, we cannot discount the possibility that more educated parents also have higher incomes and thus can allow their offspring the relative luxury of studying the humanities.

CHAPTER 5

CHANGE IN HUMANITIES MAJORS FROM 1973 TO 1981

As described earlier, both the 1972 high school seniors and the 1980 seniors were surveyed a second time two years after high school graduation. This permitted a detailed comparison of the characteristics of humanities majors in both cohorts as of their sophomore year in college. In contrast to Chapter 4, the focus here is on how the students majoring in the humanities changed from 1973 to 1981. The first results which we will report concern the numbers of students involved in each year. In all cases, the numbers are estimates of the numbers in the total student population, based on a weighting of the number of cases in the actual sample.

Results

In 1972 and 1980, the estimated numbers of high school seniors were extraordinarily similar, 3,043,598 and 3,040,928, respectively, and in each year approximately one-third of the seniors subsequently entered two- or four-year colleges and survived until the college sophomore year. However, in 1973, 56,000 (weighted estimate) of the sophomores described themselves as being majors in one of the humanities, and in 1981 only 40,000 did[1]. Thus, according to our procedures, there was a 29% decline in the number of humanities majors. In the same time period, as shown in Figure 5-1, the number of nonhumanities majors declined from 1,050,000 to 991,000, a decline of 6%. In view of the many assumptions involved in making population estimates, the estimates are subject to unknown and possibly large error; however, the relative decline in the number of humanities majors in comparison to nonhumanities majors is regarded by the authors as a reasonable approximation to the true state of affairs.

---

[1] The procedures followed in identifying humanities majors in 1973 and 1981 are described in the appendix. As described there, a more accurate description of the category in question would be "students enrolled in October of the second academic year after high school graduation." Since such students were largely college sophomores that term is used for expositional convenience.

The proportion of men majoring in the humanities declined slightly more than that of women: in 1972, 43% of the humanities majors were men, and in 1980, 40%.

Simultaneously, the proportion of men enrolled in nonhumanities programs also declined from 53% to 46%. In summary, in this time period:

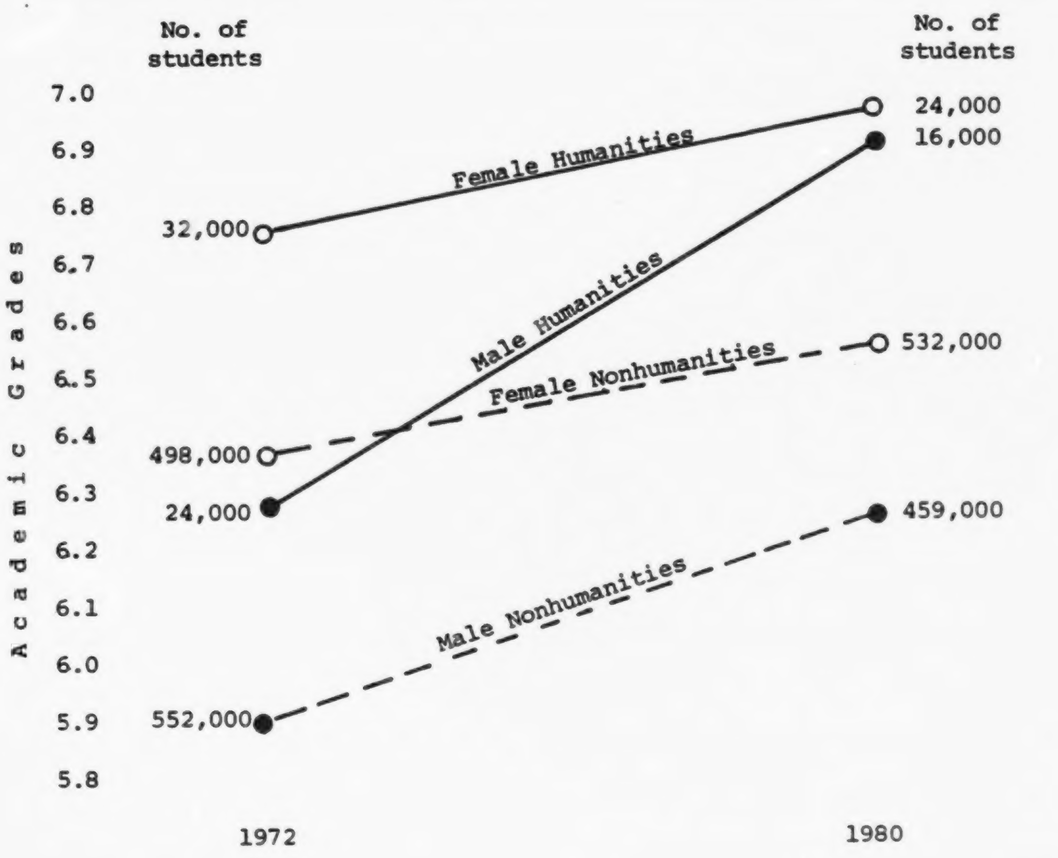
- the total number of college sophomores declined by 7%;
- the total number of humanities majors declined by 29%;
- the number of men majoring in the humanities declined by 33%;
- the number of women majoring in the humanities declined by 25%.

These figures represent the result of a complex set of factors including the currently higher persistence rate of women in higher education and the small number of questionnaire respondents in 1980 who declined to identify their sex.

Figure 5-1 shows how the mean self-reported secondary school grades of the humanities majors compared with those of the nonhumanities majors when the samples were divided by sex. Notice first that the high school grades of all sample members increased from 1972 to 1980, presumably because of the widely reported inflation in academic grades during this period. The grades of humanities majors clearly were superior to those of the nonhumanities majors in both 1972 and 1980, and within these samples the women reported higher grades. The discrepancy between the grades of men and women decreased from

Figure 5-1

Mean Grades in High School by Sex and College Major
(8 = mostly A's to 1 = below D)



*Percentages here and on subsequent figures are based on weighted samples.

1972 to 1980—a convergence which has been observed in examining a broad range of trend data for the past 10 to 15 years (Hilton, 1985).[2]

For Figure 5-2 we subdivided the two major groups by whether they had been in the academic or the general/vocational curriculum in high school. The students in the academic curriculum reported higher grades generally, but the greatest change from 1972 to 1980 was for general/vocational students who subsequently majored in the humanities. Judging from the numbers involved, 9,000 to 5,000, they represented—in 1980—a more self-selected group.

Of more interest is the change in the distribution of high school students between the academic and the general/vocational programs. The number of academic students declined from 806,000 to 675,000 while the number of general/vocational students increased from 303,000 to 367,000. In 1972, 5.7% of the academic students became humanities majors and 3.0% of the general/vocational students did so. If these percentages had held constant from 1972 to 1980, one would have predicted a decline of 6,000 in the number of humanities majors instead of a decline of 16,000. The additional 10,000 resulted from the fact that the percentages did not remain constant. The percentage for humanities majors declined to 5.0%, and for nonhumanities majors it declined to 1.4%.

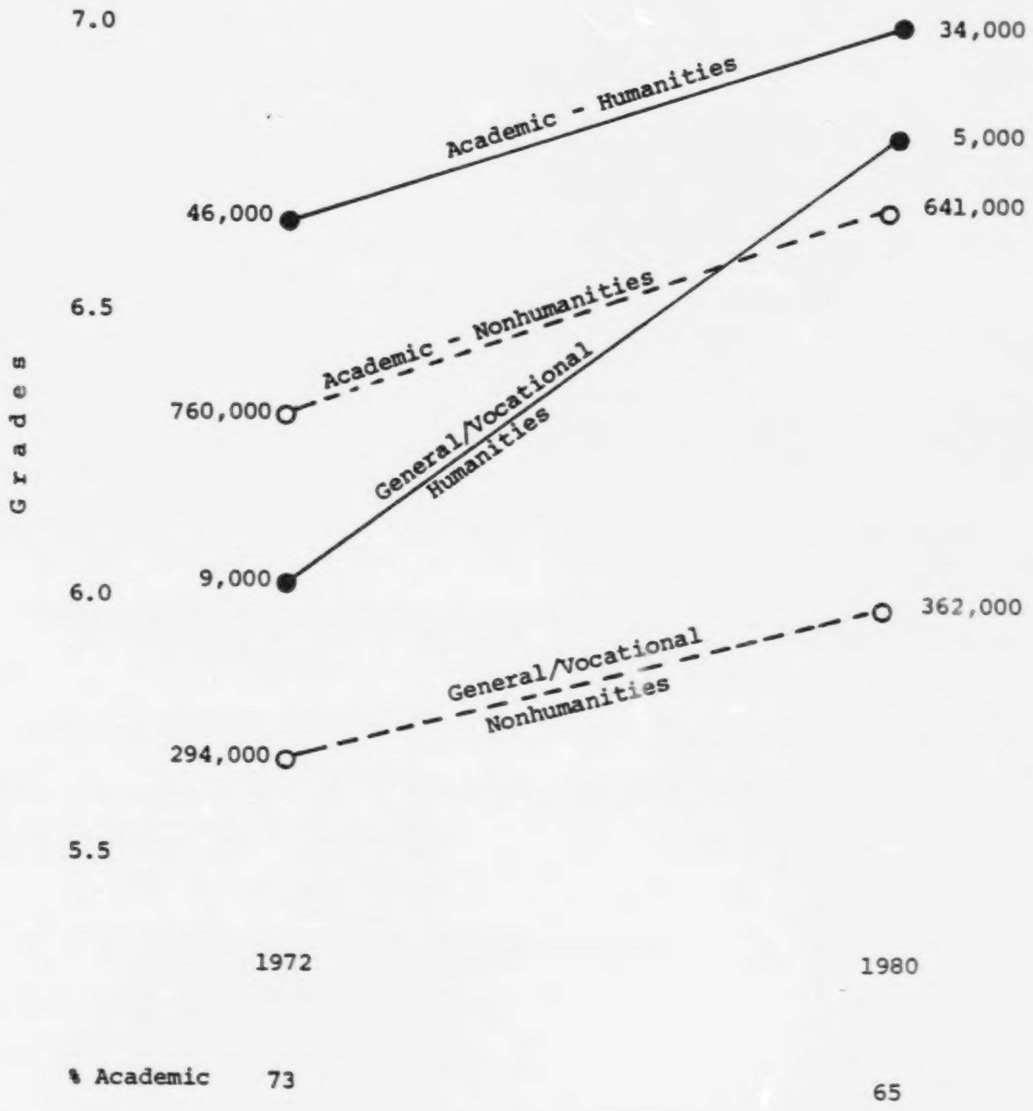
---

[2] Figure 5-1 and subsequent figures may be deceptive in that they imply that changes from 1972 to 1980 took place in a steady, linear fashion. From the available data, we cannot conclude that this is the case.

In this figure and subsequent figures the number at the left end of each trend line is the estimated number in the population in 1972 and, at the right end, the number in 1980.

Figure 5-2

Mean Grades in High School by High School Curriculum and College Major



Thus, the total decline of humanities majors can be viewed as the joint result of a decline in the number in the "pipeline," i.e., the number of high school seniors in the academic program, and a decline in the percentage of college sophomores choosing to major in the humanities.

Figure 5-3 shows the results of the reading tests which the sample members took as part of each senior year survey[3]. The mean scores of the humanities majors are substantially higher than those of the nonhumanities majors, particularly for the men in the sample. This result may reflect a greater degree of self-selection among the men.

In Figure 5-4 the two major groups are divided by the type of secondary school attended. The highest reading scores were for the humanities majors who attended private or parochial secondary schools. It is of interest that their number actually increased (from 7,000 to 10,000) and that the overall mean scores of the humanities majors remained relatively unchanged, whereas the mean scores of the nonhumanities majors sharply declined, whether they attended public or nonpublic secondary schools. This decline is, of course, another example of the general decline which also was observed on the SAT. In the present case, however, the decline is for a national probability sample of high school students in contrast to the highly self-selected SAT population. Notice also that the percentage of humanities majors who attended nonpublic schools increased from 15% in 1972 to 26% in 1980.

---

[3] For these trend comparisons, we used a reading score that was scaled by means of Item Response Theory procedures (Rock et al., 1984) in order to increase the sensitivity of the measurement of changes in mean scores.

Figure 5-3

Mean Reading Score of Humanities Majors by Sex

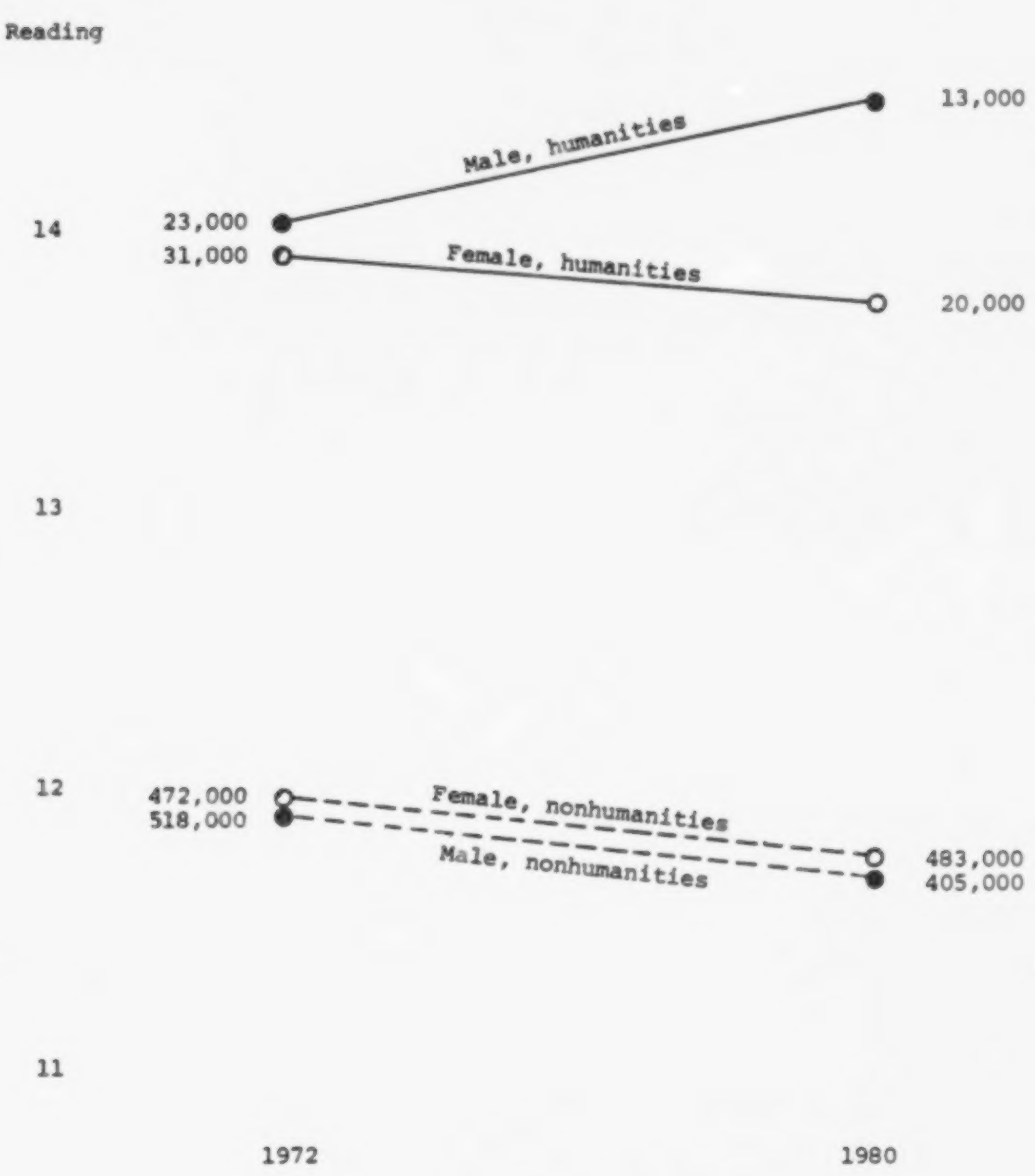
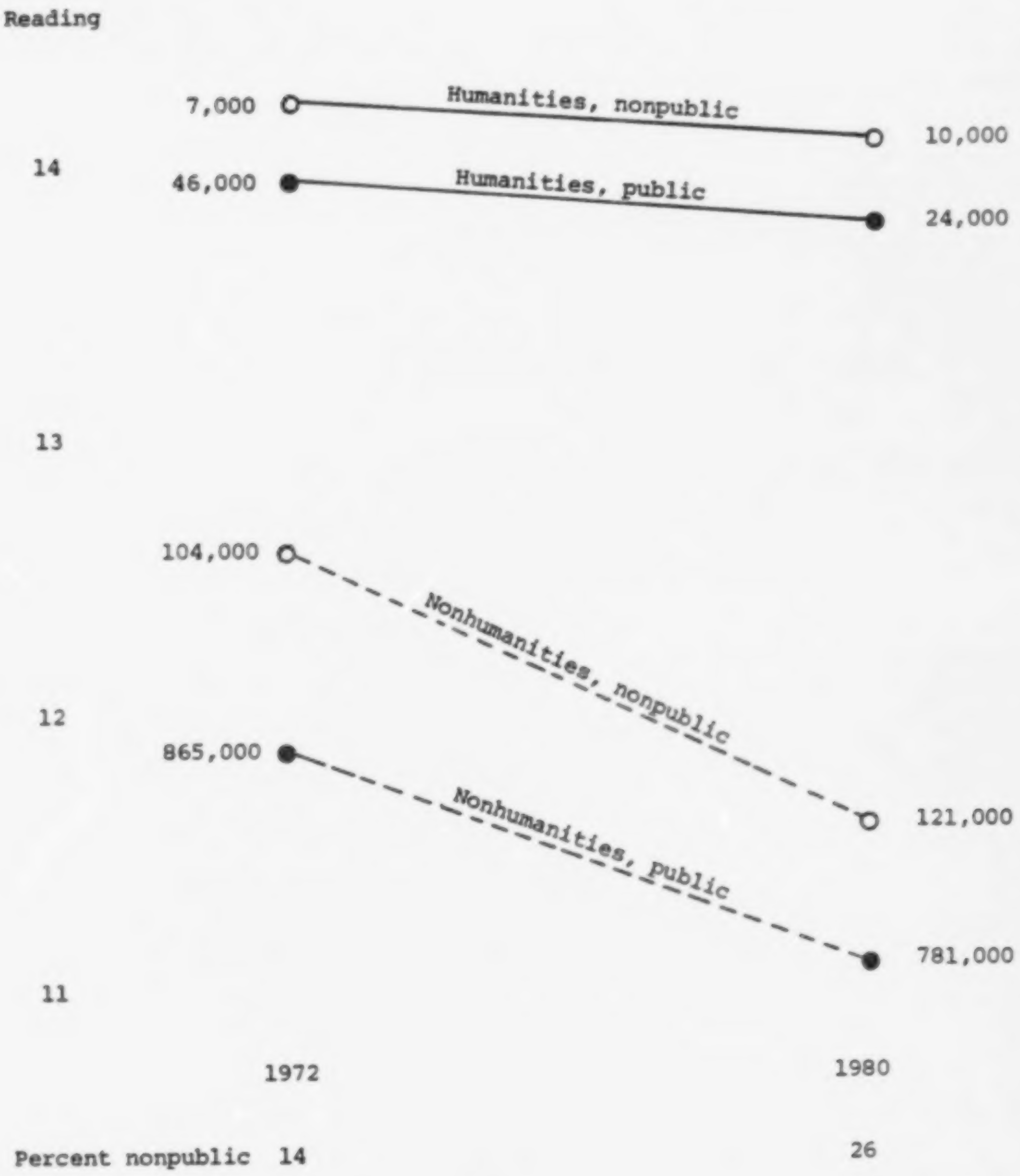


Figure 5-4

Mean Reading Score by Type of Control of High School



The change in mean mathematics scores from 1972 to 1980 was even more pronounced than that for the reading test, as shown in Figure 5-5. A possible contributing factor for the surprising increase in mean mathematics scores for humanities students may be seen in Figure 5-6, which depicts self-reported time spent each week on homework, by sex. Contrary to the general decline for the bulk of the sample in hours of homework—which has been hypothesized to be a major cause of the general score decline (Hilton, 1985)—the humanities majors in general exhibited no decline, although women declined slightly and men increased somewhat.

Identical questionnaire items concerning parent's education and occupation and certain household possessions permitted the classification of students in 1972 and 1980 into comparable socioeconomic categories. As shown in Table 5-1, in both years a higher proportion of the humanities students were classified as high SES, and the percentage of humanities students so classified increased from 52% to 56% from 1972 to 1980. The change in one component of the SES index, father's education, is shown in Figure 5-7. The increase of .5 standard deviations for the humanities majors represent a substantial increase in the mean level of father's education. Another reflection of the increase in the SES of humanities majors is shown in Figure 5-8, which depicts the percentage of mothers with professional positions, by major and type of secondary school attended. As expected from the other results, the percentage of mothers with professional positions approximately doubled from 1972 to 1980, but the dramatic increase for humanities majors who attended nonpublic schools, from 3% to 41%, was not expected. The implication is that having a highly educated and high salaried mother greatly increases the probability of a student's majoring in the humanities.

Figure 5-5

Mean Mathematics Score by Sex

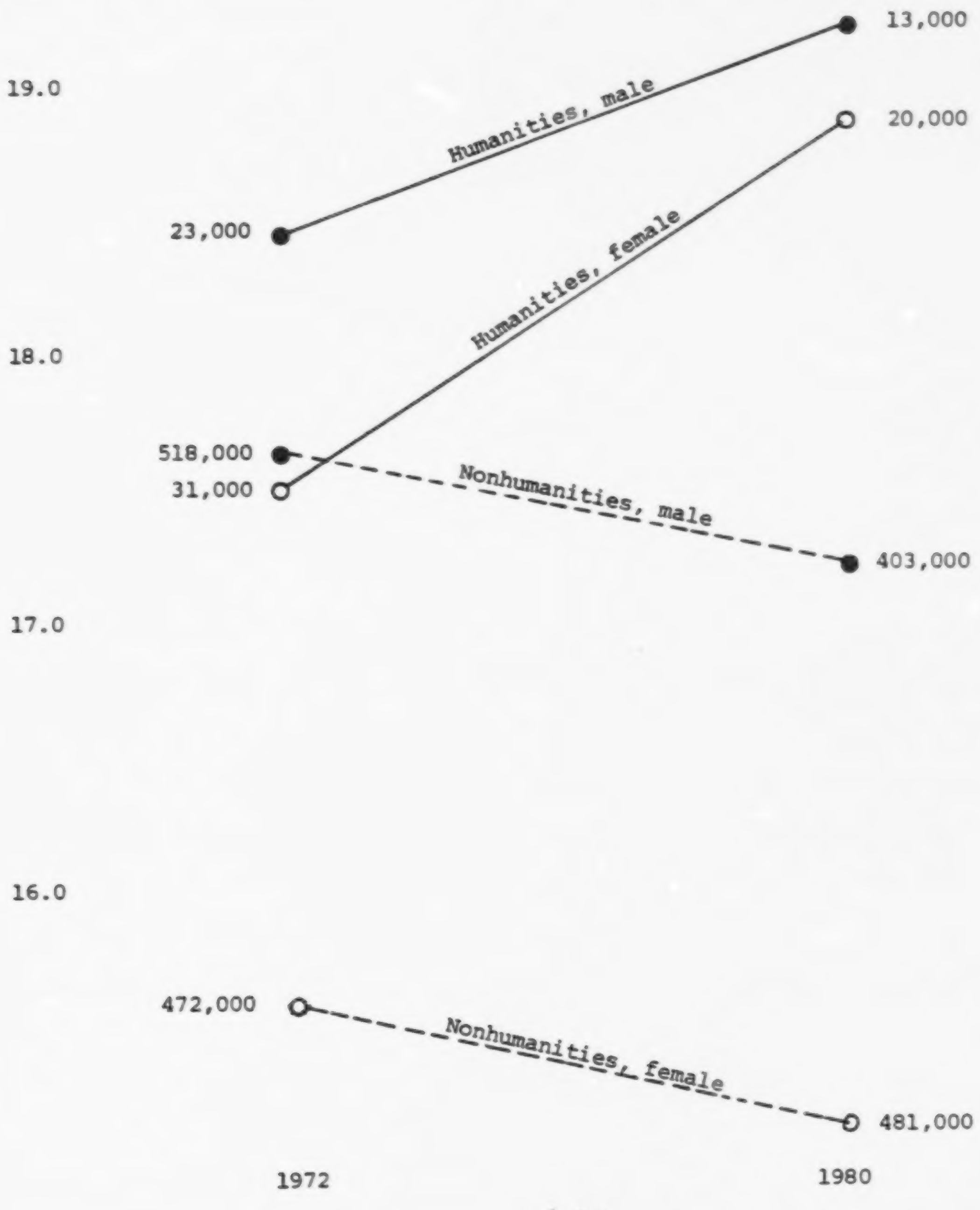


Figure 5-6

Time Spent Each Week on Homework by Sex
(1 = 0-5 hours; 2 = 5-10 hours; 3 = 10 + hours)

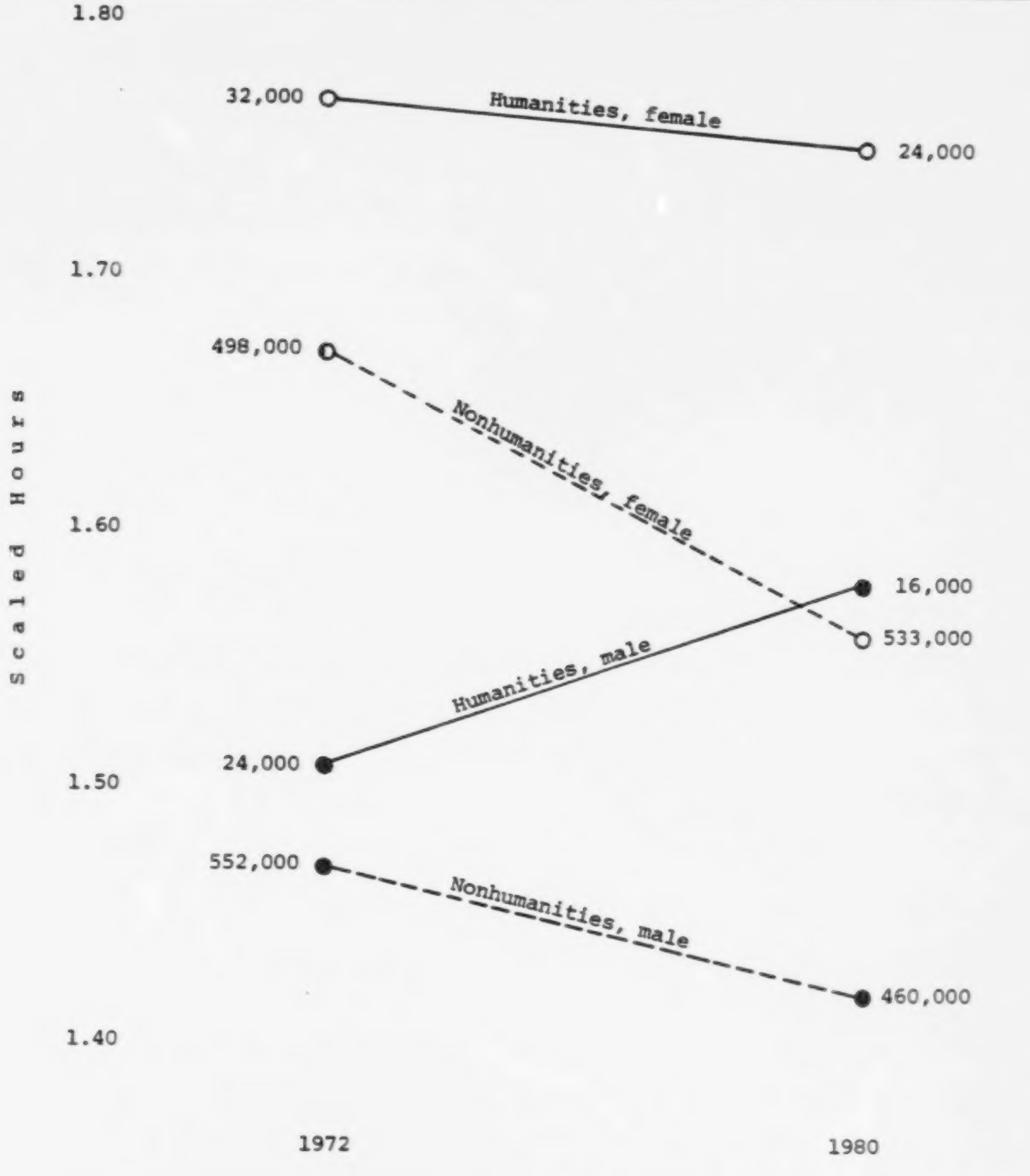


Table 5-1

Socioeconomic Status of Humanities and Nonhumanities Students

	1972			1980		
	Sample N	Weighted N	%	Sample N	Weighted N	%
Humanities						
Low	38	5,254	9	20	3,158	8
Middle	107	21,590	39	44	14,656	36
High	153	28,534	52	60	22,517	56
			100			100
Nonhumanities						
Low	842	139,422	13	1,007	148,150	15
Middle	2,342	499,014	48	1,547	461,959	46
High	2,029	411,169	39	1,081	386,730	39
			100			100

Figure 5-7

Father's Education by Major of Student
(1 = Less than high school; 5 = Grad./Prof.)

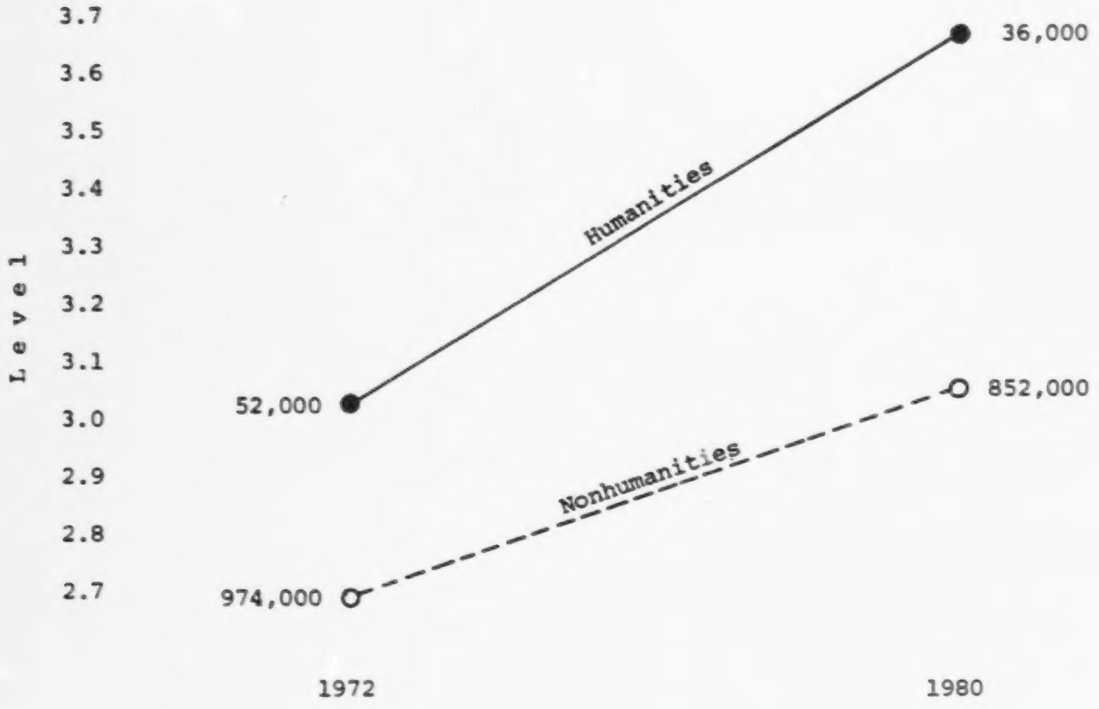
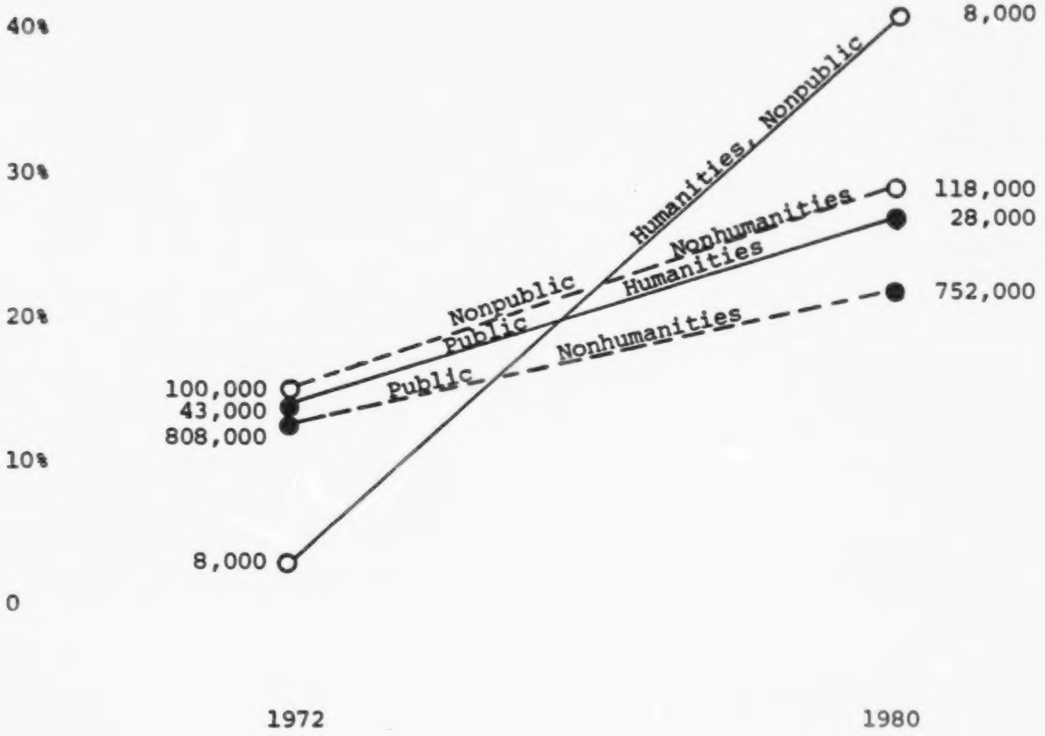


Figure 5-8

Percentage of Mothers with Professional Positions by Major and Type of High School



In both 1972 and 1980 the students were asked to indicate how important certain outcomes were to them in their lives. In general, as shown in Figure 5-9, the students' ratings of "having lots of money" increased from less than "somewhat important" to slightly more than "somewhat important." In 1972 the humanities majors attached relatively less importance to "having lots of money," but in 1980 the high SES humanities majors increased to the same level as the nonhumanities, while low and middle SES humanities majors remained at a relatively low level. It appears that low and middle SES students who elect to major in the humanities are those who attach relatively low importance to monetary rewards.

On a second attitude item concerning the importance of "working to correct social and economic inequalities" an opposite trend was observed, as shown in Figure 5-10. The humanities majors attached greater importance to this than the nonhumanities majors did, but the strength of their endorsement declined substantially from 1972 to 1980, in concert with the means for the nonhumanities majors.

Figure 5-11 shows the mean level of education planned by the subjects. Clearly the humanities majors anticipated a higher level than the nonhumanities majors, and within each group the men expected a higher level than the women did.

Figure 5-12 shows the extent to which the students agreed with the statement that their "school should have placed more emphasis on basic academic subjects (math, science, English, and so forth)." We assume that this item reflects the students' dissatisfaction with the amount of emphasis on academic subjects in their school curriculum, a high level of agreement reflecting dissatisfaction. As one would expect, the nonhumanities majors

Figure 5-9

Student's Report on Importance of Earning Money by Socioeconomic Status
(1 = Not important; 3 = Very important)

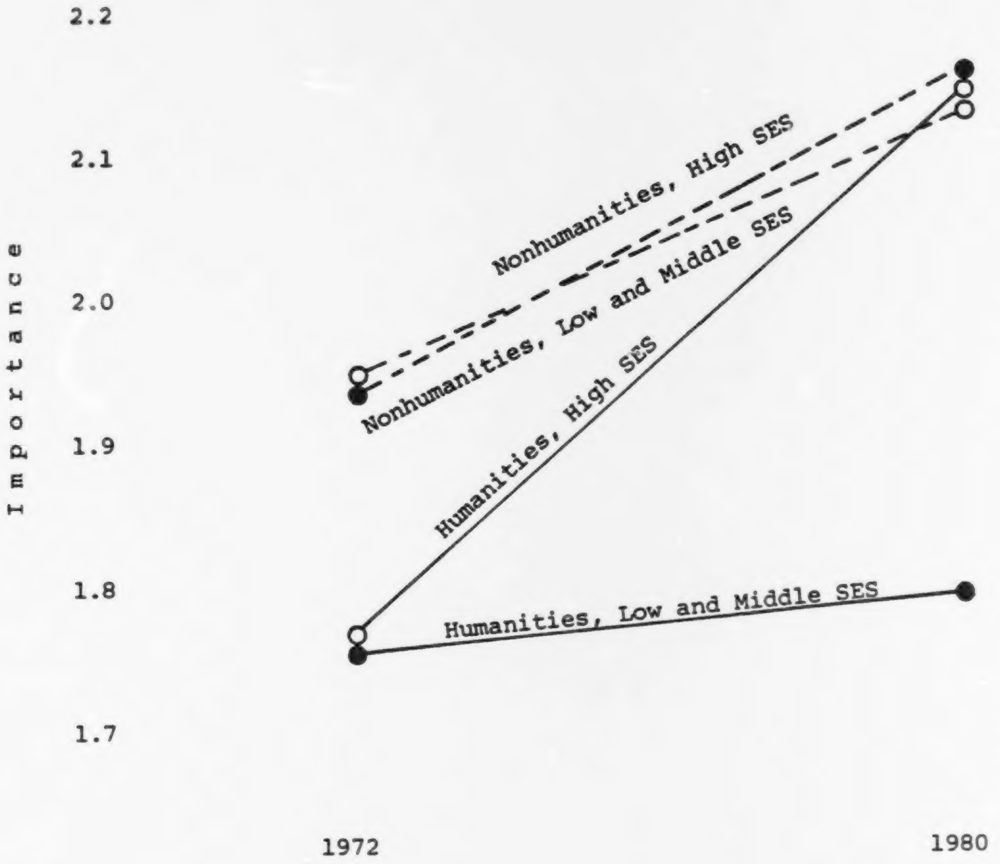


Figure 5-10

Student's Report on Importance of Work to Correct Social Inequalities
(1 = Not important; 3 = Very important)

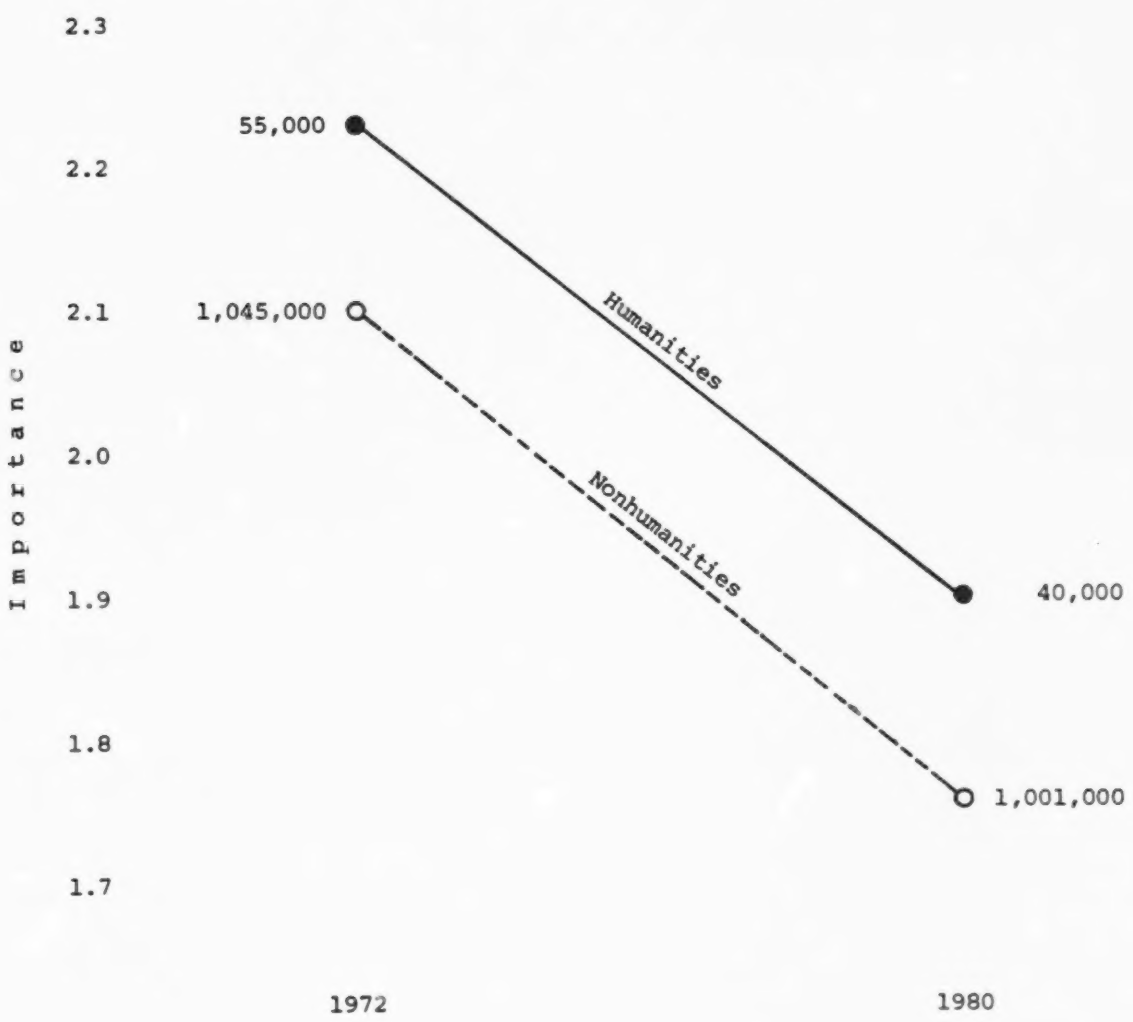


Figure 5-11

Highest Level of Education Planned, by Major and Sex
(1 = Less than high school, 5 = Graduate or professional school)

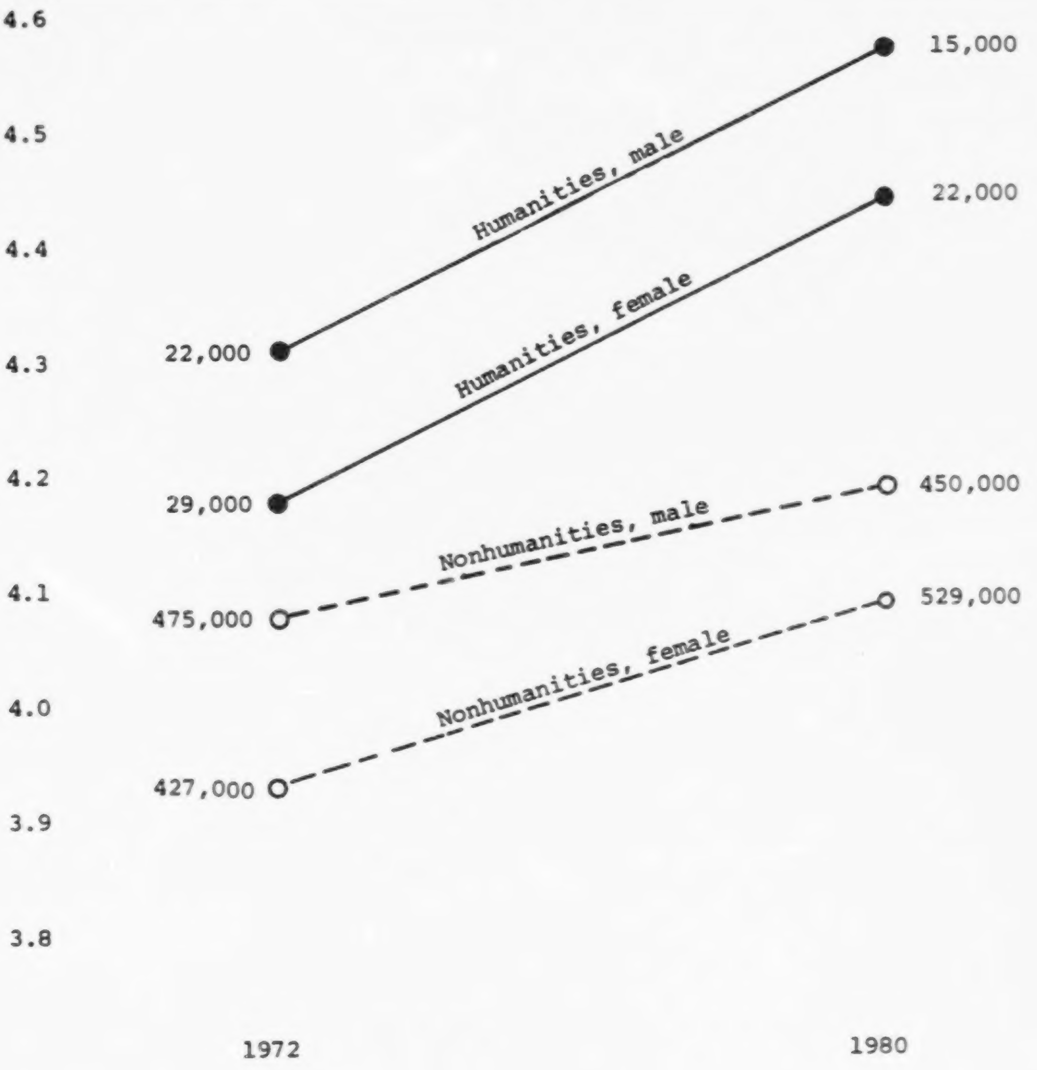
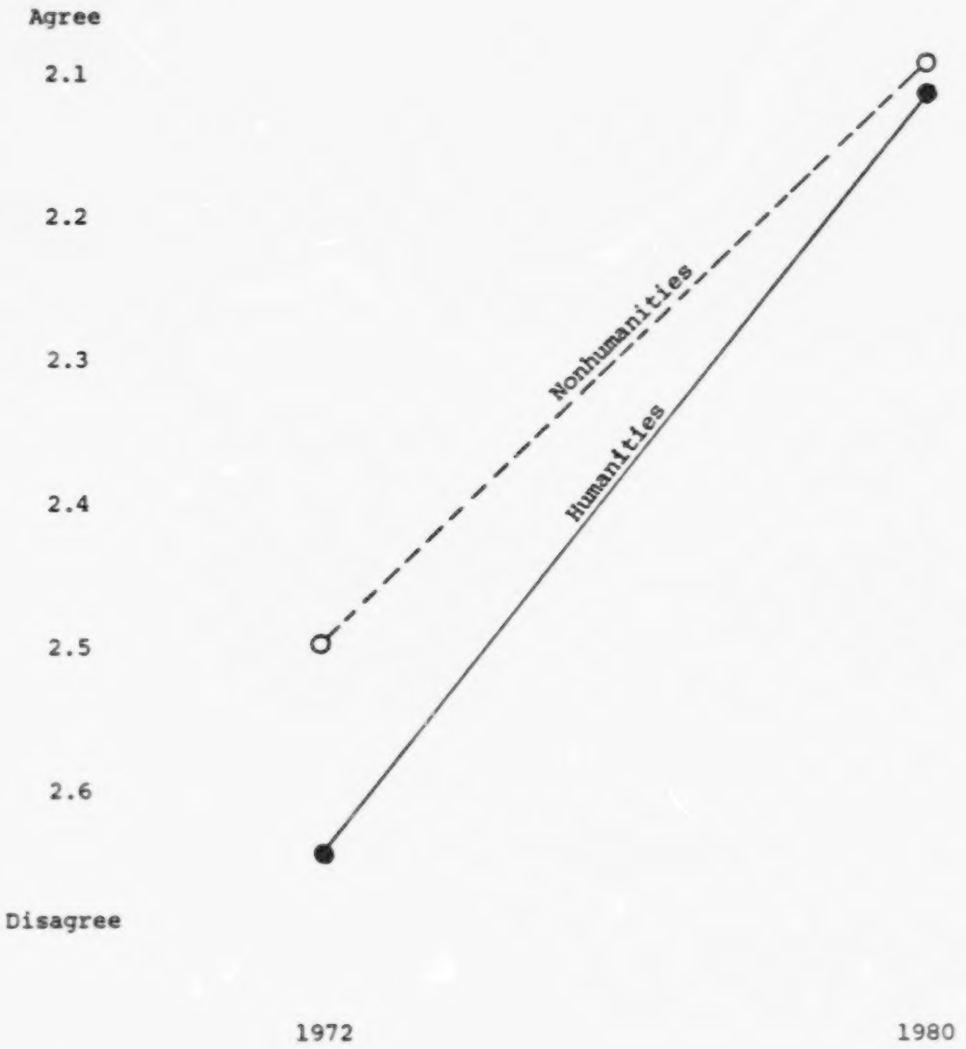


Figure 5-12

Attitude Towards More Emphasis on Academics
(1 = Agree strongly; 4 = Disagree strongly)



reported more dissatisfaction than the humanities majors, but it was not expected that the level of agreement would increase so markedly from 1972 to 1980 and that both groups would contribute to the increase. We assume that this item reflects a real decline in emphasis on basic academic subjects in the schools from 1972 to 1980, an assumption that is supported by other findings from our data analyses, such as the sharp decline in semester hours of foreign languages in which the average student enrolled.

Conclusions

What conclusions can we draw from these tables and figures? First, let us try to characterize students majoring in the humanities in the 1981-1982 academic year. At the risk of oversimplifying the results, we would describe them as students who, as high school seniors, had significantly higher test scores, both in reading and in mathematics, and higher high school grades. They placed more importance than their nonhumanities counterparts on making a contribution to society and less emphasis on financial rewards. They were more likely to have attended nonpublic secondary schools and to have come from families higher in socioeconomic status. Their fathers were more educated and more of their mothers had professional positions. This finding was particularly true of those humanities majors who attended nonpublic secondary schools. The humanities majors reported doing more homework during secondary school than students majoring in the nonhumanities. A higher portion of the former planned to attend graduate school.

Perhaps most important, the humanities majors were fewer in number in 1980 than in 1972. Even in 1972, only 18 out of every 1,000 high school seniors received bachelor's degrees in the humanities, as shown in Figure 2-1. This number can be expected to be substantially lower in the 1980's in view of the smaller number of humanities majors who were "in the pipeline," i.e., who chose to major in the humanities as college sophomores (see Figure 5-1). Better evidence in regard to graduation rates will be available sometime later in 1986 when the results of the third follow-up of the 1980 seniors are available.

The implications of these findings depend in part on one's beliefs about the value of majoring in the humanities. One could argue that the situation as we found it in the early 1980's is as it should be, namely, that students majoring in the humanities should be a self-selected elite representing the best in our undergraduate colleges. The alternative view is that the benefits of such studies should not be limited to an elite few--that there is a need for more balance in the distribution of undergraduate majors.

If more balance is desirable, what can we say about how to achieve it? First, it is clear from the pathway diagrams we constructed that certain early decisions that students make (or that are made for them) greatly reduce the probability of their majoring in the humanities and eventually receiving a bachelor's degree in the humanities. In particular, enrollment at the high school level in vocational or general programs reduces the probability of majoring in the humanities in that such enrollment greatly reduces the probability of college entrance. If rejection of the academic program in secondary school represents the carefully considered and informed judgment of the student, then it is perhaps as it should be. But we suspect that more often than not the judgment is neither well considered nor informed, and that it results in young people either not being qualified or motivated for advanced study or, if admitted to college, not being qualified for majoring in the humanities. The implication is that more steps should be taken to inform students of the importance of early curriculum decisions to their future educational and occupational opportunities.

A second implication concerns the exodus from traditional academic study in high school. The evidence is that large numbers of secondary school students express a desire for more academic emphasis in their high school program, and the implicit suggestion is that the academic content of contemporary high school courses is neither demanding enough to satisfy the needs of students or stimulating enough to retain their interest. This implication must reflect on the quality of instruction in the humane disciplines. Studying the humanities appears to be a not very rewarding experience for large numbers of students.

Perhaps what is needed—in addition to steps to upgrade the quality of instruction—is the kind of recognition that students receive for outstanding performance in the sciences and in the performing arts. Why isn't there an award program in the humanities similar to the Westinghouse Talent Search and the Arts Recognition and Talent Search? Should not a student who achieves exceptional accomplishment in a foreign language or in English literature or history receive the same recognition as received by a student who conducts an original science experiment or achieves unusual skill with a musical instrument? We would strongly recommend that such an award program be given serious consideration by the National Endowment for the Humanities or a foundation dedicated to the well-being of the humanities, or by both.

CHAPTER 6

SUMMARY AND CONCLUSIONS

This study was undertaken to respond to four main questions:

- What proportion of college-bound high school seniors major in the humanities and, further, what proportion of those who do so eventually receive bachelor's degrees in the humanities and, of these, what proportion intend to make a career of their interests?
- What are the early characteristics (e.g., interests, self-concept, cognitive competencies) of young people who eventually study humanities at the undergraduate level in comparison to those who study in other areas (e.g., the physical sciences)?
- What is the probability of bachelor's degree attainment in the humanities by students who follow one educational pathway vs. another (e.g., attending a four-year college vs. attending a two-year college and transferring to a four-year college)?
- If we know the number of students at some point "in the pipeline," how many are likely eventually to receive bachelor's degrees in the humanities? What factors may cause past predictions to be invalid and in what direction?

We will first summarize the results relevant to these questions and then will summarize additional results that are responsive to further questions that emerged in the course of the investigation.

Enrollment in Humanities and Degree Attainment

As presented in Chapter 3, of every 1,000 sample members who earned a bachelor's degree by the fall of 1976, 63 were classified as humanities majors at the beginning of the freshman year of college and—of those—52 were also classified as humanities majors at the beginning of their sophomore year. These 52 were, however, joined by 18 additional undergraduates, bringing the total number of sophomore humanities majors to 70 (out of 1,000 degree recipients). Fifty of these continued into the junior year and were joined by 41 other undergraduates, and, of the resulting 91 humanities majors, 64 were classified as humanities majors when they received their bachelor's degree. They were joined by 17 undergraduates, however, bringing the total degree recipients in the humanities to 81.

Thus, of the 63 students per 1,000 degree recipients who started as humanities majors, 37 (59%) eventually received bachelors' degrees in the humanities. Clearly, initial choice of the humanities represented a serious commitment on the part of the student. In addition, the humanities gained students throughout the undergraduate years. These results would seem to speak well for the power of undergraduate humanities programs to retain and attract students.

Postbaccalaureate Commitments and Intentions

When the graduate school and professional school enrollments of the 1972 cohort were examined, it was clear that undergraduates who majored in the humanities were overrepresented in graduate school in comparison to professional schools. Twelve percent of the graduate students had majored in the humanities and eight percent of the professional school students had.

Early Characteristics of Students Majoring in the Humanities

In Chapter 4 the characteristics of college sophomores majoring in the humanities were compared with the characteristics of sophomores majoring in the nonhumanities and then in Chapter 5 the characteristics of these two groups in 1973 were contrasted with those of the corresponding groups in 1981.

Differences in 1973. In summary, relatively few of the available measures showed noticeable differences between humanities majors and nonhumanities majors. The single best discriminator was the vocabulary score from the test battery taken by the students as high school seniors. The humanities majors had a clearly higher mean score. In addition, on the average the humanities majors:

- Had higher mathematics mean scores,
- Had higher educational aspirations,
- Had mothers with higher-level occupations,
- Were more likely to report that their plans were influenced by their teachers,
- Placed less importance on making money, and
- Were more likely to have attended high schools that offered Advanced Placement programs.

Whether other variables than those studied would produce a sharper differentiation can only be conjectured. Results do make it clear that the humanities attract a remarkably diverse group of students. Furthermore, specific situational factors undoubtedly play an important role in the choice of majors for many students, making it unlikely that a simple, clear-cut way of identifying humanities majors would be found.

Differences in 1981. By 1981, most of the differences observed in the 1973 sample appeared again. It is of interest, moreover, that humanities students had a higher mean mathematics score in 1973 than nonhumanities majors and an even higher score in 1981 suggesting that the superior credentials of the humanities students were not limited to verbal areas.

Also of interest is the observation that humanities majors were more likely to have attended high schools offering Advanced Placement programs. The suggestion is that such courses stimulate the interest of the student in pursuing study of the humanities; although whether a school offers Advanced Placement may better be viewed as an indicant of the academic climate of the schools or of the characteristics of the community that the school serves. Schools offering Advanced Placement may stimulate more students to major in the humanities as undergraduates.

Why humanities majors tend to come from families of higher socioeconomic status is uncertain. Of several possible hypotheses we lean toward the view that more educated parents are more likely to provide a home setting conducive to developing interests in the humanities and to provide a good background for study in those subjects.

Trends from 1973 to 1981. The major trend of interest is the decline which occurred in the estimated number of college sophomores who reported they were majoring in the humanities, from 56,000 in 1973 to 40,000 in 1981. This is a substantial drop (29%) and cause for serious concern. On the other hand it can be viewed as a trend towards greater selectivity on the part of students interested in the humanities and/or greater selectivity on the part of humanities departments. (From the available data it is not possible to determine which was the greater influence.) The humanities majors in 1981 had higher test scores, higher academic grades, devoted more time to homework, and had higher educational aspirations. In other words, the decline in numbers of humanities majors did not result from a migration of high ability students to the nonhumanities. The opposite seems to be the case.

Whether this refining of the quality of humanities students represents educational progress in the United States was briefly discussed at the end of Chapter 5. Some educators would argue that it does represent progress, while others would argue that the benefits of studying the humanities should be made available to larger numbers of college undergraduates, and some possible ways of effecting this were discussed, including the provision of greater incentives for study of the humanities and informing students of the importance of early decisions they make in regard to which educational pathway to follow. We can not be certain that more students would attend college if they enrolled in college preparatory programs in high school rather than vocational and technical programs but the statistics in regard to educational pathways clearly suggest that this is the case.

Predicting the future number of bachelor's degree recipients in the humanities is risky. The reduced number of sophomores majoring in the humanities in 1981 would suggest that substantially fewer will receive bachelor's degrees in the humanities in the 1980's. But in view of the enhanced qualifications of humanities majors in 1981 it is conceivable, although unlikely, that the number will equal the number who received such degrees in the seventies. The third follow-up of the 1980 cohort will provide definitive data on the question.

Degree Attainment in the Humanities

In general, the pathways analysis described in Chapter 2 provided valuable insights about the progress of students from high school graduation to attainment of the bachelor's degree. Five stages were examined: (1) the senior year of high school, (2) entrance to colleges, (3) status in the third fall following high school graduation, (4) attainment of the bachelor's degree, and (5) expected occupation at age 30. At the first stage, the students were categorized into four groups depending on the mix of subjects they took as high school seniors. Results at this stage indicated that almost half of the students (493 out of every 1000 high school seniors) took less than four semesters of mathematics and science and less than four semesters in foreign languages and social studies during the last three years of high school, indicating that the high school seniors in 1972 tended to choose programs that do not provide strong preparation for the academic demands of college.

The results for the second stage (first college entered) showed a strong relationship between high school program and college attendance. Students who had a balanced high school program (at least four semesters of math and science and at least four semesters of foreign languages and social studies) were much more likely to attend college and to enroll in four-year colleges instead of two-year colleges. Furthermore, they were more likely to be enrolled in a four-year college in the fall of 1974 and to receive bachelor's degrees.

The results from the last stage (expected occupation at age 30) showed that 61 percent of the bachelor's degree recipients expected to be in professional work, 21 percent expected to be managers or proprietors, and 17 percent expected to be in all other occupations. Surprisingly, there was very little difference between the occupational expectations of students receiving degrees in the humanities and those receiving degrees in the nonhumanities. Only a long-term follow-up of the sample will reveal whether the same proportion of humanities majors actually entered professional work at age 30 and exactly what kind of professional work they engaged in. Such a follow-up--the fifth follow-up--will, in fact, be conducted in the spring of 1986. If the results show that the students' expectations were valid, the implication will be that undergraduate enrollment in the humanities does not limit the students' postbaccalaureate career opportunities. In fact, the results suggest that study of the humanities may broaden these opportunities.

As part of the pathways analysis, cross-tabulations of the numbers of students at one stage vs. the numbers at a later stage were obtained for a large number of samples. Some of these have been reported already, for example, major field of bachelor's degree vs. expected occupation at age 30. Some of the major findings from other cross-tabulations reported in Chapter 2 are as follows:

- The great majority of 1972 high school seniors who were enrolled in four-year colleges in fall 1974 first enrolled in four-year colleges (only 13% first enrolled in two-year colleges).
- There was a substantial relation between choice of high school program and likelihood of earning a bachelor's degree. Approximately half of the college graduates belonged to the "Academic: Balanced" group while only one-fifth of the graduates belonged to the "All Other Programs" group.

- Among students who earned a bachelor's degrees, students who first enrolled in a two-year college were about as likely to major in humanities as students who first entered a four-year college. Thus, enrolling in a two-year college does not appear to reduce the probability of majoring in the humanities.
- Three-fifths of the students who began in a four-year college earned a bachelor's degree, but only one-fifth of those who entered a two-year college did.
- Three-fifths of the students earning a bachelor's degree expected to be engaged in professional work at age 30 as compared to about one-sixth of the sample members without a bachelor's degree.

In addition, we examined separately the pathways followed by twelve subgroups of the total sample: males and females; high and low SES students; White, Black, and Hispanic students; high ability students; high ability Black students; bachelor's recipients; graduate students; and professional students. At the risk of not doing justice to the wealth of findings in Chapter 2, we offer the following generalizations:

- For the 1972 high school graduates, approximately the same number of males and females followed each pathway with slightly more males receiving bachelor's degrees. These results indicate that the greater tendency of men to pursue higher education has virtually disappeared.
- Substantially higher proportions of high SES than low SES students took a balanced academic program in high school, first entered a four-year college, and earned a bachelor's degree. (So few low SES students in the sample received bachelor's degrees in the humanities that a comparison was not meaningful.) Thus, socioeconomic status continued to be a major determinant of educational attainment.

- Black students were less likely than White students to attain bachelor's degrees even though they were almost as likely to enroll in four-year colleges. Among those who earned bachelor's degrees, Black students were about as likely to major in humanities as White students. Results for high school programs suggest that Black students were less well prepared than White students for pursuit of the bachelor's degree.
- Hispanic students were less likely than Black or White students to enroll in four-year colleges but those that did were equally likely to earn bachelor's degrees and to major in the humanities.
- High ability students were more likely than the total sample (1) to take a balanced high school program, (2) to enter first a four-year college, (3) to earn a bachelor's degree and (4) to major in the humanities. Thus, there was no evidence that high ability students were more likely than the total sample to receive their degrees in the nonhumanities. Instead the opposite was true, though the difference was small.

The conduct of the study pointed to two pressing methodological problems in research on students of the humanities. The first concerns the need for agreement among designers of survey questionnaires on a definition of what the field of humanities encompasses. Students who reported they intended to enroll or were enrolled in a "preprofessional field," that is, in prelaw, premedicine, or predentistry, created particular problems in that many history majors, for example, may have checked "preprofessional" when faced with the relevant questionnaire item. In fact, this data problem combined with the fact that history was included as an example of a "social science" precluded the use of the high school senior questionnaires as a source of data about intentions to major in the humanities. In addition, art appreciation and music appreciation were classified in the arts categories whereas most definitions would classify these courses in the humanities. (Manual coding of the students' write-in responses in the follow-up questionnaires permitted precise coding of college majors.) Future surveys, both local and national, will serve the research needs of the humanities better if there is a widely accepted format for the relevant multiple choice item or for the wording of an item requesting a written response.

The second methodological problem results from the heterogeneity of the humanities field. Comparisons of the characteristics of humanities majors and nonhumanities majors provide useful generalizations for certain purposes, but comparisons of the characteristics of major subgroups of the humanities—for example, history majors—with relevant subgroups of the nonhumanities field—for example, social studies teachers—would provide sharper distinctions of more usefulness for curriculum planning and policy decisions. Achieving subgroups of sufficient size will, of course, require either very large survey samples or special purpose studies focussing on subgroups of special interest.

On a positive note, the pathways analysis of longitudinal data proved to be a fruitful method of examining student development. In one figure the results of many complex tables can be graphically depicted and comparison of the pathways followed by two or more samples readily identifies junctures at which the transition probabilities for the samples differ. Also, being based on longitudinal data, the pathways diagrams are not subject to the deceptive results which frequently are obtained from cross-sectional data.

In conclusion, the results of this study suggest a number of reasons to be encouraged about the status of the humanities in the United States:

- College undergraduates majoring in the humanities had higher test scores and higher grades than undergraduates majoring in the nonhumanities and the gap widened from 1973 to 1981. On most ability measures the mean ability of humanities majors increased from 1973 to 1981 despite the well-known decline in SAT scores which continued throughout the period.
- For the 1972 cohort the net number of undergraduates majoring in the humanities increased from the freshman to the senior year and there was no evidence of a net loss of able students from the humanities; in fact, the students leaving the humanities were slightly less able than those persisting in their humanities study. Students in the top quarter in ability who earned bachelor's degrees were slightly more likely to major in the humanities than were bachelor's recipients generally.
- There was no evidence that majoring in the humanities limits postbaccalaureate educational and career opportunities in comparison to majoring in the nonhumanities, although future follow-ups of the students are necessary to confirm this observation.
- Majoring in the humanities serves the educational needs of a broad range of undergraduates, whether male or female or White, Black, or Hispanic.

On balance we conclude that study of the humanities, at least on the undergraduate level, is in better health than many writers would have us believe.

REFERENCES

Bowen, W. G. (1981). Graduate education in the arts and sciences: Prospects for the future. Change, 13(5), 40-45.

Conant, J. B. (1959). The American high school today. New York: McGraw Hill.

Commission on the Humanities. (1980). The humanities in American life. Berkeley, CA: University of California Press.

Davis, J. A., & Levinsohn, J. R. (1979). The NLS study of the high school class of 1972: A resource for educational and human development researchers. In J. E. Milholland (Ed.), Insights from large-scale surveys: New directions for testing and measurement, No. 2. San Francisco: Jossey-Bass.

Flanagan, J. C., Dailey, J. T., Shaycoft, M. F., Gorham, W. A., Orr, D. B., & Goldberg, I. (1962). Design for a study of American youth. Boston: Houghton Mifflin.

Hilton, T. L. (1962). Career decision-making. Journals of Counseling Psychology, 9, 291-298. Also in B. Hopson & Hayes (Eds.). (1968). The theory and practice of vocational guidance. New York: Pergamon Press.

Hilton, T. L. (1979). ETS study of academic prediction and growth. In J. E. Milholland (Ed.), Insights from large-scale surveys: New directions for testing and measurement, No. 2. San Francisco: Jossey-Bass.

Hilton, T. L. (1982). Persistence in higher education (CB Rep. No. 82-5). New York: College Entrance Examination Board.

Hilton, T. L. (1985). Changes in student achievement. Paper presented at the annual meeting of AERA, Chicago.

Hilton, T. L., & Rhett, H. (1973). The base-year survey of the national longitudinal study of the high school class of 1972. (Final report to the U. S. Department of Health, Education, and Welfare, National Center for Education Statistics, Contract No. OEC-0-72-0903.) Princeton, NJ: Educational Testing Service.

Huff, B. A., & Chandler, M. O. (1970). A taxonomy of instructional programs in higher education (Catalog No. HES.250:50014). Washington, DC: U. S. Government Printing Office.

National Endowment for the Humanities. (1982). National Endowment for the Humanities: Sixteenth Annual Report, 1981. Washington, D. C. Author.

O'Connor, L. (1981). *Degrees and other formal awards conferred by New Jersey colleges and universities: F. Y. 1980 and recent trends*. (Data Brief Series, Vol. 1, Number 2) Trenton, NJ: New Jersey Department of Higher Education.

Rock, D. A., Hilton, T. L., Pollack, J., Ekstrom, R. B., & Goertz, M. E. (1984). *A study of excellence in high school education: Educational policies, school quality, and student outcomes. Psychometric analysis*. (Contract No. 300-83-0247. Submitted to U. S. Department of Education, National Center for Education Statistics) Princeton, NJ: Educational Testing Service.

Sanford, N. (Ed.). (1956). Personality development during the college years. *Journal of Sociological Issues*, *12*(4), 3-71.

Schaie, K. W. (1965). A general model for the study of developmental problems. *Psychological Bulletin*, *64*, 92-107.

Super, D. E. (1953). A theory of vocational development. *The American Psychologists*, *8*, 185-190.

U. S. Bureau of Labor Statistics. (1960). *Doctoral manpower: Employment, demand and supply, 1972-85* (Bulletin). Washington, DC: U. S. Government Printing Office.

Wise, L. L. (1979). Project TALENT: Studying the development of our human resources. In J. E. Milholland (Ed.), *Insights from large-scale surveys: New directions for testing and measurement, No. 2*. San Francisco: Jossey-Bass.

Wolfle, D. (1954). *America's resources of specialized talent*. New York: Harper.

APPENDICES

A - Data Processing Steps in Defining Flow Diagram Categories

B - Multiple Regression of Humanities Major (1) Vs. Nonhumanities Major (0) on Student Characteristics in 1972

Multiple Regression of Humanities Major (1) Vs. Nonhumanities Major (0) on Student Characteristics in 1980

C - Data Processing Steps in Defining Sophomore Major in 1973 and 1981

APPENDIX A

Data Processing Steps in Defining Flow Diagram Categories

Data Processing Steps in Defining Flow Diagram Categories

In the following discussion, the following abbreviations are used in designated questions: FQ = First Follow-Up Questionnaire (Fall 1973), SQ = Second Follow-Up Questionnaire (Fall 1974), TQ = Third Follow-Up Questionnaire (Fall 1976), and FT = Fourth Follow-Up Questionnaire (Fall 1979). References to variable numbers are based on the codebook for NLS Release which appears in Volume III of National Longitudinal Study: Base Year (1972) through Fourth Follow-Up (1979) Data File Users Manual.

High School Program

Data for this classification were obtained from Question 4 of the Student's School Record Information Form (SRIF). The relevant question is as follows: "How many semesters will the student have taken in each of the following subjects between July 1, 1969 and the date he or she graduates?" The form was completed by a school representative for each student. The data for this study was reported in the column headed: "Total number of semesters." The relevant variable numbers are: Science (46), Foreign Language (53), Social Studies (60), and Mathematics (74).

For each of the four subjects, students with four or more semesters of study were placed in one category, and students having fewer than four semesters in that subject were placed in the other category. Students who had no entry for a subject were assumed not to have had four semesters or more of study in that field. This assumption seems reasonable because the SRIF was completed by school personnel, and because a preliminary tabulation revealed that only a small proportion of the entries were blank. (For example, of the

16,740 students in the sample for the pathways analysis, 235 had missing data on both foreign language and social studies.)

Once students had been assigned to one or the other category on each subject area, they were readily assigned to the appropriate flow diagram category.

Type of College Entered First

Assignment of students to categories on this variable required a substantial number of steps. The basic procedure began by determining whether or not the student had reported attendance in the first week of October, 1972 at a college that had a specific FICE code, and if so, determining that the student did not state that at that time he or she was attending a "vocational, trade, business, or other career school." Students who fulfilled these two requirements were classified as being enrolled in college in 1972. For all other students, the same steps were taken for the next following year, and this procedure was repeated for each year through 1979. For students who were determined to have enrolled during a particular year, those students who reported that they were attending a "junior or community college (two-year)" were classified as two-year college entrants and those who reported that they were attending a "college or university" were classified as four-year college entrants. For students who chose neither of these options, their FICE codes were listed and their type of college was determined by referring to the Education Directory, Colleges and Universities, 1980-81.

The data collection procedure in the first (Fall 1973) and third (Fall 1976) follow-ups asked students to report information about the college that they were attending in 1973 and 1976 before asking them about attendance in 1972 and 1975, respectively. Students were asked if they were attending the same college in the survey year as in the preceding year, in Question FQ30 (Variable 761) in 1973 and in Question FQ66 (Variable 1910) in 1976. If so, they were not asked to repeat the information about that college. In the analysis, it was necessary to use responses to those two questions to locate data for the 1972 and 1975 entering groups.

The following table summarizes the data sources for the FICE codes and for type of college attended. Variable numbers are shown in parentheses.

Year	FICE Code	Type of College
1972	CFICE (1630)	FQ32B (776)
1973	CFICE (1631)	FQ26B (732)
1974	SQ11A (1109)	SQ12 (1111)
1975	TQ67FICE (1911)	TQ54 (1872)
1976	TQ53FICE (1869)	TQ68 (1914)
1977	FT105A (2833)	FT106 (2837)
1978	FT93A (2793)	FT94 (2797)
1979	FT81A (2753)	FT82 (2757)

Certain relatively minor variations in the questions may be relevant. With respect to time of enrollment, students were asked to state the "exact name and locations" of the school that they were attending in "the first week of October" for 1975, and in the last month of the period beginning in November of the preceding year through October of the designated year for 1977, 1978, and 1979. In the questions pertaining to kind of college attended, the option "Four-year college or university" was begun in 1975. It should also be noted that the analysis is based on the updated FICE codes, which are unique for a given school across the NLS data base.

The manner in which this variable was defined does not permit the identification of missing data cases. It seems very unlikely, however, that a student who was attending college at a designated time and who completed the questionnaire would fail to give the name of his or her college or would give it in so garbled a form as to prevent its being given a FICE code. The use of the FICE code as the basis for defining college enrollment seems very advantageous from the viewpoint of insuring that students counted as enrolled in college were, in fact, so enrolled.

One minor limitation in the data file for purposes of this classification arises from the fact that for the period 1972 through 1976, data for students who first entered college at some time other than the fall were not taken into account in the analysis. It seems very likely that the effect of this limitation on the classification of students as two-year or four-year college entrants is negligible.

Status in Fall 1974

The classification of students at this stage involved two steps. To be included in the "Enrolled in a Four-year College" group, a student must have written in the name and location of a college in Question SQ11 that was assigned a specific FICE code for Variable 1109 in the data file and he or she must have replied "college or university" to Question SQ12 (Variable 1111), "What kind of school is this?" All students who did not fulfill both of these requirements were classified in the "Not Enrolled in Four-year College" group.

Major Field: Bachelor's Degree

In identifying students who had attained a bachelor's, response to four questions were used. In the Third Follow-Up Questionnaire (Fall 1976) students were asked: "What kind of certificate, license, diploma or degree have you earned?" Students who had earned "A 4-year or 5-year college Bachelor's degree" were asked to circle "5", and to give the month and year in which they received the degree. (Question TQ48, Variables 1842, 1843, 1844). In the Fourth Follow-Up Questionnaire substantially the same question was repeated. (Question FT76, Variables 2724, 2725, 2726). Students were also asked to specify their highest level of education or training as of October 1976 (Question TQ49a, Variable 1854) and they were asked to specify their highest level of college education as of the first week of October 1979 (Question FT67, Variable 2652). In constituting the bachelor's group, students who reported a month and year of bachelor's degree on variables 1843 and 1844 and who reported that they had earned a bachelor's or higher degree on Question 49a, Variable 1854) were classified in the bachelor's degree group. For all other students, those who reported a month and year of bachelor's degree on Question FT76, Variables 2725, 2726) and who reported that they had earned a bachelor's degree group.

In determining the major field of the bachelor's degree, free-response data were available in two forms. Questions TQ48 and FT76a asked students to report "Area of Certificate, License or Degree (for example, Real Estate License, Shorthand Certificate, Degree in History)" as part of a general question. For students who earned bachelor's degrees in the years 1975 through 1979, it was also possible to use their response to a question in which they were asked to designate their "actual or intended field of study or training area" specifically. It was decided to use the response given at the beginning of the senior year for students who reported that they were seniors in the fall preceding graduation, and to use the response to the less specific question otherwise. Because all self-reported major fields had been manually coded using the NCES system of FOS codes, data from both types of questions could be merged in the analysis.

In determining FOS codes, the following variables were used:

(a) Month and year of College Degree: 1844, 2726.

(b) Major field in Fall 1974 through Fall 1978: 1121, 1921, 2841, 2801, and routing variable 1920.

(c) Classification in fall preceding degree: 1120, 1890, 1919, 2840, 2800.

(d) Major field from Questions TQ48 or FT71: 1845, 2727.

The following table shows the number of students in the sample for each FOS code classified as belonging to the humanities:

Field	FOS Code	Actual Number
Archaeology	2203	4
Area Studies		
South Asian, Indian	303	1
Slavic Studies	307	5
Latin American Studies	308	1
Middle Eastern Studies	309	1
European Studies, General	310	2
West European Studies	312	1
American Studies	313	1
Art (History, Appreciation)	1003	5
English		
English, General	1501	79
English, Literature	1502	20
Comparative Literature	1503	2
Classics	1504	1
Linguistics	1505	3
Rhetoric, Speech, Debate, Forensic Science, Public Address	1506	10
Ethnic Studies		
Mexican American Cultural Studies	2213	1
Foreign Languages		
Foreign Languages, General	1101	12
French	1102	13
German	1103	7
Spanish	1105	16
Chinese	1107	1
Japanese	1108	1
Slavic Languages (other than Russian)	1115	1
History	2205	93
Music (History, Appreciation, Musicology)	1006	3
Philosophy	1509	19
Religious Studies	1510	21
Total		324

A number of FOS codes assigned to the humanities were not represented in the sample. Although all Foreign Language fields (FOS Codes 1101 through 1119 and 1199), all Area Studies fields (FOS Codes 0301 through 0314), and all Culture Studies fields (FOS Codes 2211 through 2213) were classified as humanities, a number of those codes were not represented in the sample. Two additional fields that were classified as belonging to the humanities, Philosophy of Education (FOS code 0821) and Biblical Languages (FOS code 2303), were not represented in the sample.

Expected Occupation at Age 30

This classification was based on the response to a single multiple-choice question, FT63, "What kind of work will you be doing when you are 30 years old? (Circle the one that comes closest to what you expect to be doing.)" As it happened, if a student circled two responses to this question, both responses were included in the data file (Variables 2647 and 2648). In the present study, students who made two responses were classified in the professional category if at least one response belonged to this group. If neither response belonged to the professional group but at least one response belonged to the manager/proprietor group, the student was assigned to that group.

APPENDIX B

Multiple Regression of Humanities Major (1)
Vs. Nonhumanities Major (0) on Student Characteristics in 1972

Multiple Regression of Humanities Major (1)
Vs. Nonhumanities Major (0) on Student Characteristics in 1980

Multiple Regression of Humanities Major (1)
Vs. Nonhumanities Major (0) on Student Characteristics in 1972

```
REGRESSION USING SOPH YEAR AS DEP VAR

THE DEPENDENT VARIABLE IS H/H+H/C .  THE MULTIPLE CORRELATION IS  0.1726.  THE STANDARD ERROR OF ESTIMATE=         3.0530

                                              PROPORTION                                                         PROBABILITY
                          SUM OF SQUARES      OF SQUARES          N.D.F.     MEAN SQUARE        F RATIO          OF LARGER F
   TOTAL ABOUT ORIGIN         55734.8810                          5537.
UNDER NULL HYPOTHESIS         52935.7153          1.0000          5536.
    DUE TO HYPOTHESIS          1577.8368          0.0298            26.        60.6860          6.5108             0.0
                ERROR         51357.8785          0.9702          5510.         9.3208

                     STANDARD      REGRESSION       STANDARD      T STATISTICS    CONTRIBUTION     MEASURE OF
                   REG. WEIGHT       WEIGHTS      ERROR OF WT.  WITH 5510.D.F.     TO R-SQ.      COLLINEARITY

CONCOMITANT VARIABLES

      PSEUDO                        -0.0706          0.0340         -2.0764                          0.9927

INDEPENDENT VARIABLES

      HSGRADES        0.0154         0.0026          0.0029          0.9073         -0.0001          0.3900
      HOMEWORK       -0.0004        -0.0001          0.0048         -0.0274         -0.0000          0.1460
      PART-DEB       -0.0035        -0.0016          0.0061         -0.2553         -0.0000          0.0654
      INF-TCHR        0.0354         0.0109          0.0047          2.5826         -0.0012          0.0638
      IMP-MONY       -0.0338        -0.0118          0.0049         -2.4037         -0.0010          0.1086
      IMP-SUCC        0.0168         0.0053          0.0044          1.2012         -0.0003          0.0958
      FATH OCC        0.0315         0.0169          0.0087          1.9470         -0.0007          0.3275
      MOTH OCC       -0.0356        -0.0231          0.0100         -2.3065         -0.0009          0.2626
      ED PLAN         0.0367         0.0113          0.0053          2.1485         -0.0008          0.3980
      FATH ED         0.0048         0.0008          0.0036          0.2250          0.0000          0.6087
      MOTH ED         0.0259         0.0053          0.0038          1.3721         -0.0003          0.5055
      M ED PLN        0.0312         0.0004          0.0057          0.0719         -0.0000          0.3649
      STUDYAID       -0.0169        -0.0047          0.0041         -1.1401         -0.0002          0.1952
      ACADEMP         0.0207         0.0053          0.0035          1.4902         -0.0004          0.0867
      IRTVOC          0.1034         0.0059          0.0011          5.5706         -0.0055          0.4891
      IRTREAD         0.0363         0.0018          0.0009          1.9271         -0.0007          0.5027
      IRTMATH        -0.0604        -0.0021          0.0006         -3.2463         -0.0019          0.4920
      SEX            -0.0233        -0.0102          0.0066         -1.5427         -0.0004          0.2264
      SES             0.0064         0.0021          0.0074          0.2801         -0.0000          0.6653
      SCHTYPE        -0.0053        -0.0037          0.0099         -0.3795         -0.0000          0.1013
      HSPROG          0.0143         0.0070          0.0073          0.9564         -0.0002          0.2126
      COM TYPE        0.0153         0.0076          0.0068          1.1147         -0.0007          0.0711
      %MS/PHD        -0.0031        -0.0009          0.0040         -0.2153         -0.0000          0.1472
      %ACAD           0.0048         0.0014          0.0046          0.3107         -0.0000          0.2579
      OFFER AP        0.0294         0.0132          0.0064          2.0702         -0.0008          0.1278
      SCH SES        -0.0076        -0.0025          0.0055         -0.4627         -0.0000          0.3518
```

Multiple Regression of Humanities Major (1)
Vs. Nonhumanities Major (0) on Student Characteristics in 1980

```
REGRESSION USING SOPH YEAR AS DEP VAR

THE DEPENDENT VARIABLE IS H/NON-H ,  THE MULTIPLE CORRELATION IS  0.2173.  THE STANDARD ERROR OF ESTIMATE=        3.1197

                                               PROPORTION                                                      PROBABILITY
                           SUM OF SQUARES      OF SQUARES        N.D.F.    MEAN SQUARE          F RATIO       OF LARGER F
    TOTAL ABOUT ORIGIN       40341.8025                          3825.
  UNDER NULL HYPOTHESIS      38796.9612          1.0000          3824.
    DUE TO HYPOTHESIS         1832.3179          0.0472            26.        70.4738            7.2410          0.0
                ERROR        36964.6433          0.9528          3798.         9.7327

                  STANDARD     REGRESSION        STANDARD    T STATISTICS   CONTRIBUTION    MEASURE OF
                 REG. WEIGHT     WEIGHTS       ERROR OF WT.  WITH 3798.D.F.   TO R-SQ.     COLLINEARITY

CONCOMITANT VARIABLES

      PSEUDO                      -0.0764         0.0346        -2.2067                       0.9923

INDEPENDENT VARIABLES

     HSGRADES        0.0176        0.0027         0.0031         0.8806        -0.0002        0.3700
     HOMEWORK        0.0046        0.0013         0.0048         0.2663        -0.0000        0.1642
     PART-DEB        0.0595        0.0230         0.0063         3.6342        -0.0033        0.0648
     INF-TCHR        0.0245        0.0068         0.0045         1.4887        -0.0006        0.0702
     IMP-MONY       -0.0216       -0.0068         0.0052        -1.3190        -0.0004        0.0650
     IMP-SOCL        0.0270        0.0077         0.0047         1.6244        -0.0007        0.0942
     FATH OCC       -0.0179       -0.0083         0.0088        -0.9449        -0.0002        0.3014
     MOTH OCC       -0.0026       -0.0012         0.0087        -0.1326        -0.0000        0.3267
     ED PLAN        -0.0342       -0.0082         0.0054        -1.5146        -0.0006        0.5077
     FATH ED         0.0607        0.0090         0.0038         2.3497        -0.0014        0.6245
     MOTH ED         0.0072        0.0013         0.0042         0.3077        -0.0000        0.5457
     M ED PLN        0.0645        0.0164         0.0054         3.0669        -0.0024        0.4325
     STUDYAID       -0.0266       -0.0060         0.0040        -1.5088        -0.0006        0.1968
     ACADEMP        -0.0106       -0.0024         0.0037        -0.6498        -0.0001        0.0495
     IRTVOC          0.1285        0.0069         0.0013         5.4055        -0.0073        0.5558
     IRTREAD         0.0013        0.0001         0.0010         0.0535        -0.0000        0.5591
     IRTMATH        -0.0303       -0.0009         0.0007        -1.2890        -0.0004        0.5459
     SEX            -0.0183       -0.0071         0.0066        -1.0727        -0.0003        0.1407
     SES            -0.0301       -0.0084         0.0080        -1.0472        -0.0003        0.6965
     SCHTYPE        -0.0296       -0.0161         0.0096        -1.6782        -0.0007        0.1920
     HSPROG          0.0280        0.0112         0.0075         1.5068        -0.0006        0.2720
     COM TYPE       -0.0221       -0.0108         0.0082        -1.3257        -0.0004        0.0988
     %MS/PHD        -0.0213       -0.0039         0.0031        -1.2574        -0.0004        0.1275
     %ACAD           0.0253        0.0059         0.0044         1.3551        -0.0005        0.2815
     OFFER AP        0.0521        0.0201         0.0066         3.0315        -0.0023        0.1521
     SCH SES         0.0217        0.0064         0.0059         1.0726        -0.0003        0.3861
```

APPENDIX C

Data Processing Steps in Defining Sophomore Major in 1973 and 1981

DATA PROCESSING STEPS IN DEFINING SOPHOMORE MAJOR IN 1973 AND 1981

Because of the relevant questionnaire items and the timing of the data collections differed for the NLS and HS&B surveys, the procedures followed to identify the sophomores majoring in the humanities in 1973 and in 1981 differed.

1973. The sample selection relied on the series of questions concerning school attendance in October, 1973, in the First Follow-up Questionnaire. The first requirement was that the school that the respondent was attending (Q 26a) have a valid FICE code from 1,002 To 29,037. If not, the respondent was classified as not enrolled in a two- or four-year college in October of 1973. Similarly, sample members who responded No to Q 25 were classified as not attending a two- or four-year college. Third, respondents indicating they were not attending a two- year or four-year college (Q 26b) were excluded. The balance were assigned to the humanities major or nonhumanities major in accordance with the coding of their written response to Q 28a (Field of study in October 1973.) This coding is described in appendix. These steps produced the following distribution:

	Actual N
1. Humanities majors	437
2. Nonhumanities majors	7,055
3. No major or major unknown	550
4. All others	13,308
5. No First Follow-Up Questionnaire	1,302
Total	22,652

The appropriate base year and first follow-up weights were used in estimating population values. As a result of these steps, the "humanities major" category included students who were in their second year of college and also students who did not attend college in their first year after high school but were enrolled in October 1973. Thus, a more accurate description of the "sophomore" category would be "students in their second year after high school."

1981. Since the First Follow-up Questionnaire for the 1980 Senior cohort included successive items inquiring about the first five schools the respondent may have attended during the two years following high school graduation (Q 33), the responses in regard to each of the possible schools were examined to establish which school the respondent was attending in October of 1981. Then, the students who were not attending two- or four-year colleges were excluded and the balance were assigned to the humanities major and nonhumanities major categories in accordance with the coding of the sample members responses in regard to their field of study (Q 33I). It should be noted that the members of the 1980 Senior cohort responded to the First Follow-up Questionnaire in the spring of 1983. If they had changed their school and major at midyear of were in the same school and had changed their major at midyear, they still would have been classified by what their major was in October, 1982. As a result the major of a small number of students may have been misclassified.

These steps produced the following distribution for the 1980 Senior cohort:

		Actual N
1.	Humanities majors	128
2.	Nonhumanities majors	3,803
3.	No major or major unknown	587
4.	All others	6,709
5.	No First Follow-Up Questionnaire	768
	Total	11,995

Note that the actual number of humanities majors is substantially less than in 1973 primarily because only a randomly selected subsample of the 1980 seniors were followed-up. When properly weighted the relative number of humanities majors in 1981 population increased but, as described in the text, the number still was less than in 1973.